# *Curriculum Vitae*
# Gregory J. Dick

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## Education

| | |
|---|---|
| 2006 | Ph.D., Marine Biology, Scripps Institution of Oceanography, UCSD |
| 2002 | Microbial Diversity Summer Course, Marine Biological Lab, Woods Hole, MA |
| 2000 | B.A., Biology, University of Virginia (Chemistry Minor) |

## Professional Positions

| | |
|---|---|
| 2020-present | Professor, Department of Earth and Environmental Sciences, University of Michigan |
| 2020-present | Professor, Department of Ecology and Evolutionary Biology, University of Michigan |
| 2016-2021 | Associate Chair for Curriculum and Undergraduate Studies, Department of Earth and Environmental Sciences, University of Michigan |
| 2014-2020 | Associate Professor, Department of Earth and Environmental Sciences, University of Michigan |
| 2014-2020 | Associate Professor, Department of Ecology and Evolutionary Biology, University of Michigan |
| 2011-present | Faculty Affiliate, Program in the Biomedical Sciences, University of Michigan |
| 2009-present | Faculty Affiliate, Center for Computational Medicine and Bioinformatics |
| 2011-2014 | Assistant Professor, Department of Ecology and Evolutionary Biology, University of Michigan |
| 2008-2014 | Faculty Associate, Program in the Environment, University of Michigan |
| 2008-2014 | Assistant Professor, Department of Earth and Environmental Sciences, University of Michigan |
| 2007-2008 | Postdoctoral Researcher, Department of Earth and Planetary Science, University of California, Berkeley |
| 2000-2006 | Graduate Research Fellow, Scripps Institution of Oceanography, UCSD |
| 1999 | Research Associate, NASA Ames Astrobiology Academy |

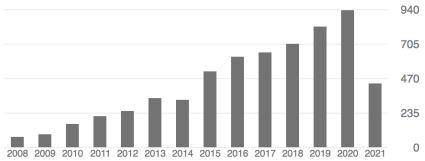
## Honors and Awards

| | |
|---|---|
| 2020 | 2020 John Dewey Award for teaching, College of Literature, Arts, and Sciences, University of Michigan |
| 2020 | GSA Geobiology and Geomicrobiology Post-Tenure Award |
| 2019 | Geoclub Best Professor (Department of Earth and Environmental Sciences) |
| 2015 | Individual Award for Outstanding Contributions to Undergraduate Education, College of Literature, Science, and Arts, University of Michigan |
| 2013 | Alfred P. Sloan Research Fellow in Ocean Sciences |

# Publications

**Google Scholar:**

| | All | Since 2016 |
|---|---|---|
| Citations | 6313 | 4176 |
| h-index | 39 | 36 |
| i10-index | 63 | 62 |




**Note that the convention for my field is for the senior author (PI) to be last author**.
underline = group member;[1] = student advisee; [2] = postdoc advisee

## *Peer-reviewed papers, reviews, and book chapters*

*Submitted/in revision*

80. Pound H, R Martin, CS Sheik, M Steffen, S Newell, **GJ Dick**, RM McKay, G Bullerjahn, and S Wilhelm. Environmental studies of cyanobacterial harmful algal blooms should include interactions with the dynamic microbiome. *Environmental Science & Technology* (submitted).
79. Den Uyl P, S Chaganti, L Thompson, R Errera, C Preston, W Ussler, C Yancey[1], J Birch, S Ruberg, G Doucette, **GJ Dick**, C Scholin, and K Goodwin (2021) Monitoring Freshwater Cyanobacterial Harmful Algal Blooms via an Autonomous Underwater Vehicle. *Environmental Science & Technology* (submitted).
78. Smith DJ[1], MA Berry, RM Cory, VJ Denef, MB Duhaime, TH Johengen, GW Kling, KA Meyer[2], TW Davis, and **GJ Dick** (2021). Genomic and transcriptomic evidence for bacterial protection of bloom-forming cyanobacteria from hydrogen peroxide. *Applied and Environmental Microbiology* (submitted).
77. Gomes ML, JM Klatt, **GJ Dick**, SL Grim[1], KI Rico, MJ Medina[1], W Ziebis, L Kinsman-Costello[2], ND Sheldon, and DA Fike (2021). Sedimentary pyrite sulfur isotope compositions preserve signatures of the surface microbial mat environment in low-oxygen cyanobacterial mats. *Geobiology* (revision submitted).

*2021*

76. Chaffin JD, JF Bratton, EM Verhamme, HB Bair, AA Beecher, CE Binding; JA Birbeck, TB Bridgeman, X Chang, J Crossman, WJS Currie, TW Davis; **GJ Dick**; KG Drouillard; T Frenken; HJ MacIsaac; A McClure; RM McKay; LA Reitz; K Stanislawczyk; RP Stumpf; ZD Swan; BK Snyder; JA Westrick; P Xue; CE Yancey[1]; A Zastepa; X Zhou (2021). The Lake Erie HABs Grab: A binational collaboration to characterize the western basin cyanobacterial harmful algal blooms at an unprecedented high-resolution spatial scale. *Harmful Algae* (accepted).
75. **Dick GJ**, MB Duhaime, JT Evans, RM Errera, C Godwin, JJ Kharbush[2], HS Nitschky[1], MA Powers[1], HA Vanderploeg, KC Schmidt, DJ Smith[1], CE Yancey[1], CC Zwiers[1], and VJ Denef (2021). The genetic an ecophysiological diversity of *Microcystis*. *Environmental Microbiology* (in press).
74. Klatt JM[2], A Chennu, BK Arbic, BA Biddanda, D de Beer and **GJ Dick** (2021). Possible link between Earth's rotation rate and oxygenation. *Nature Geoscience* (accepted).
73. DJ Smith[1], JY Tan, MA Powers, XN Lin, TW Davis, and **GJ Dick** (2021). Individual *Microcystis* colonies harbor distinct bacterial communities that differ by *Microcystis* oligoype and with time. *Environmental Microbiology* (in press). https://doi.org/10.1111/1462-2920.15514
72. Lumian J, A Jungblut, M Dillon, I Hawes, P Doran, T Mackey, **GJ Dick**, C Grettenberger, and D Sumner (2021). Metabolic Capacity of the Antarctic Cyanobacterium *Phormidium*

*pseudopriestleyi* that Sustains Oxygenic Photosynthesis in the Presence of Hydrogen Sulfide. *Genes* 12: 426.

71. Delgado Vela J[1], L Bristow, H Marchant, NG Love, and **GJ Dick** (2021). Sulfide alters microbial functional potential in a methane and nitrogen cycling biofilm reactor. *Environmental Microbiology* 23: 1481-1495.
70. Merz E, **GJ Dick**, D de Beer, SL Grim[1], T Hubener, S Littman, K Olsen[1], D Stuart, G Lavik, H Marchant, JM Klatt (2021). Nitrate respiration distributions and diel migration patterns of diatoms in a microbial mat. *Environmental Microbiology* 23: 1422-1435.
69. Stewart BD, JV Sorensen, K Wendt, JB Sylvan, S White, CR. German, **GJ Dick**, JA Breier, and BM Toner (2020). A multi-modal approach to unpacking iron biogeochemical processes in buoyant hydrothermal plumes. *Chemical Geology* 560: 120018.

*2020*

68. Breier JA, MV Jakuba, MA Saito, **GJ Dick**, SL Grim[1], EW Chan1, MR McIlvin, DM Moran, BA Alanis, AE. Allen, CL Dupont, and R Johnson (2020). Revealing ocean scale biochemical structure with a deep-diving vertical profiling autonomous vehicle. *Science Robotics* 5: eabc7104
67. Schmidt KC, SL Jackrel, DJ Smith[1], **GJ Dick**, VJ Denef (2020). Genotype and host microbiome alter competitive interactions between *Microcystis aeruginosa* and *Chlorella sorokiniana*. *Harmful Algae* 99: 101939.
66. Z Zhou, Yang Liu, J Pan, B Cron, B Toner, K Anantharaman[1], J Breier, **GJ Dick**, and M Li[2] (2020). Gammaproteobacteria mediating utilization of methyl-, sulfur- and petroleum organic compounds in deep ocean hydrothermal plumes. *The ISME Journal* 14: 3136-3148.
65. Tan, JY, S Wang, **GJ Dick**, VB Young, DH Sherman, MA Burns, and XN Lin (2020). Co-cultivation of microbial sub-communities in microf luidic droplets facilitates high-resolution genomic dissection of microbial 'dark matter'. *Integrative Biology* 12: 263-274.

*2019*

64. Cron BR, CS Sheik[2], FA Kafantaris, GK Druschel, JS Seewald, CR German, **GJ Dick**, JA Breier, and BM Toner. Dynamic Biogeochemistry of the Particulate Sulfur Pool in a Buoyant Deep-Sea Hydrothermal Plume. *ACS Earth and Space Chemistry* 4: 168-182.
63. Davenport, EJ, GS Bullerjahn, TW Davis, SW Wilhelm, MK Denney, LE Krausfeldt, JMA Stough, KA Meyer[2], **GJ Dick**, TH Johengen, E Lindquist, SG Tringe, and RML McKay (2019). Metatranscriptomic analyses of diel metabolic functions during a toxin-producing *Microcystis* bloom in Lake Erie. *Frontiers in Microbiology* 10: 2081.
62. **Dick GJ** (2019). The microbiomes of deep-sea hydrothermal vents: distributed globally, shaped locally. *Nature Reviews Microbiology* 17: 271-283.
61. Kharbush J, DJ Smith[1], M Powers, HA Vanderploeg, D Fanslow, RL Robinson, **GJ Dick**, and A Pearson (2019). Chlorophyll nitrogen isotope values track shifts between cyanobacteria and eukaryotic algae in a natural phytoplankton community in Lake Erie. *Organic Geochemistry* 128: 71-77.

*2018*

60. Driscoll CB, KA Meyer[2], S Šulčius, NM Brown, **GJ Dick**, H Cao, G Gasiūnas, A Timinskas, Y Yin, ZC Landry, TG Otten, TW Davis, SB Watson, and TW Dreher (2018). A closely-related clade of globally distributed bloom-forming cyanobacteria within the Nostocales. *Harmful Algae* 77: 93-107.

59. Kramer BJ, TW Davis, KA Meyer[2], BH Rosen, JA Goleski, **GJ Dick**, G Oh, and CJ Gobler (2018). Nitrogen limitation, toxin synthesis potential, and toxicity of cyanobacterial populations in Lake Okeechobee and the St. Luci River Estuary, Florida, during the 2016 State of Emergency event. *PLoS One* 13: e0196278.
58. Delgado Vela J[1], **GJ Dick**, and NG Love (2018). Sulfide inhibition of nitrite oxidation in activated sludge depends on microbial community composition. *Water Research* 138: 241-249.
57. StadlerLB, J Delgado Vega[1], S Jain, **GJ Dick**, and NG Love (2018). Elucidating the impact of microbial community diversity on pharmaceutical biotransformation during wastewater treatment. *Microbial Biotechnology,* 11: 995-1007.
56. **Dick GJ**, SG Grim[1], and JK Klatt[2] (2018). Controls on $O_2$ production in cyanobacterial mats and implications for Earth's oxygenation. *Annual Reviews of Earth and Planetary Sciences* 46: 123-147.
55. Chaffin JD, TW Davis, DJ Smith[2], MM Baer, and **GJ Dick** (2018). Interactions between nitrogen form, loading rate, and light intensity on *Microcystis* and *Planktothrix* growth and microcystin production. *Harmful Algae*, 73: 84-97.

*2017*

54. Meyer KA[2], TW Davis, SB Watson, VJ Denef, MA Berry, and **GJ Dick** (2017). Genome sequences of lower Great Lakes Microcystis sp. reveal strain-specific genes that are present and expressed in western Lake Erie blooms. *PLoS One,* 12: e0183859.
53. Steffen MM, TW Davis, RM McKay, GS Bullerjahn, LE Krausfeldt, JMA Stough, ML Neitzey, NE Gilbert, GL Boyer, TH Johengen, DC Gossiaux, AM Burtner, D Palladino, M Rowe, **GJ Dick**, KA Meyer[2], Shawn Levy, B Boone, R Stumpf, T Wynne, PV Zimba, DB Gutierrez, and SW Wilhelm (2017). Ecophysiological examination of the Lake Erie Microcystis bloom in 2014: linkages between biology and the water supply shutdown of Toledo, Ohio. *Environmental Science and Technology*, 51: 6745-6755.
52. Sharrar AM[1], BE Flood, JV Bailey, DS Jones, B Biddanda, SA Ruberg, DN Marcus, and **GJ Dick** (2017). Novel large sulfur bacteria in the metagenomes of groundwater-fed chemosynthetic microbial mats in the Lake Huron basin. *Frontiers in Microbiology*, 8: 791.
51. Marcus DN, A Pinto, K Anantharaman[1], SA Ruberg, EL Kramer, L Raskin, **GJ Dick** (2017). Diverse manganese (II)-oxidizing bacteria are prevalent in drinking water systems. *Environmental Microbiology Reports*, 9: 120-128.
50. Berry M, RM Cory, TW Davis, MB Duhaime, TJ Johengen, GW Kling, JA Marino, PA Den Uyl, D Gossiaux, **GJ Dick**, and VJ Denef (2017). Cyanobacterial harmful algal blooms are a biological disturbance to Western Lake Erie bacterial communities. *Environmental Microbiology*, 19: 1149-1162.
49. Berry MA, JD White, TW Davis, S Jain, TH Johengen, **GJ Dick**, O Sarnelle, and VJ Denef (2017). Are oligotypes meaningful ecological and phylogenetic units? A case study of *Microcystis* in freshwater lakes. *Frontiers in Microbiology* 8: 365.
48. Snider MJ, BA Biddanda, SL Grim[1], and **GJ Dick** (2017). Versatile photophysiology of compositionally similar cyanobacterial mat communities inhabiting submerged sinkholes of Lake Huron. *Aquatic Microbial Ecology* 79: 63-78.
47. Kinsman-Costello LE[2], CS Sheik[2], ND Sheldon, GA Burton, D Costello, DN Marcus, P Den Uyl, and **GJ Dick** (2017). Groundwater shapes sediment biogeochemistry and microbial diversity in a submerged sinkhole. *Geobiology* 15: 225-239.

*2016*

46. Grim SL[1], and **GJ Dick** (2016). Photosynthetic Versatility in the Genome of *Geitlerinema* sp. PCC 9228 (Formerly *Oscillatoria limnetica* 'Solar Lake'), a Model Anoxygenic Photosynthetic Cyanobacterium. *Frontiers in Microbiology* 7: 1546.
45. Den Uyl P, LL Richardson, S Jain, and **GJ Dick** (2016). Unraveling the physiological roles of *Geitlerinema* sp. BBD and other Black Band Disease community members through genomic analysis of a mixed culture. *PLoS ONE* 11: e0157953.
44. Li M[2], S Jain, and **GJ Dick** (2016). Genomic and transcriptomic resolution of organic matter utilization among deep-sea bacteria in Guaymas Basin hydrothermal plumes. *Frontiers in Extreme Microbiology* 7: 1125.
43. Flood BP, B Fliss, D Jones, J Bailey, **GJ Dick**, and S Jain, M Mußmann, and M Winkel (2016). Draft genome of *Thiomargarita nelsonii*, a giant sulfide-oxidizing bacterium from a marine methane seep, assembled from tetranucleotide binning of a metagenome. *Frontiers in Extreme Microbiology* 7: 603.
42. Cory RM, TW Davis, **GJ Dick**, TJ Johengen, VJ Denef, MA Berry, SE Page, SB Watson, K Yuhas, & GW Kling (2016). Seasonal dynamics in dissolved organic matter, hydrogen peroxide, and cyanobacterial blooms in Lake Erie. *Frontiers in Marine Science* 3: 54.
41. Lazar CS, BJ Baker[1], K Seitz, AS Hyde, **GJ Dick**, K Hinrichs, and AP Teske (2016). Genomic evidence for distinct carbon substrate preferences and ecological niches of widespread benthic archaea in estuarine sediments. *Environmental Microbiology* 18: 1200-1211.
40. Toner BM, CR German, **GJ Dick**, and JA Breier (2016). Deciphering the Complex Chemistry of Deep-Ocean Particles Using Complementary Synchrotron X-ray Microscope and Microprobe Instruments. *Accounts of Chemical Research*. 49: 128-137.
39. Voorhies AV[1], SD Eisenlord, DN Marcus, MB Duhaime, JD Cavalcoli, BB Biddanda, and **GJ Dick** (2016). Ecological and genetic interactions between cyanobacteria and viruses in a low-$O_2$ mat community inferred through metagenomics and metatranscriptomics. *Environmental Microbiology* 18: 358-371.
38. Anantharaman K[1], JA Breier and **GJ Dick** (2016). Metagenomic resolution of microbial functions in deep-sea hydrothermal plumes across the Eastern Lau Spreading Center. *The ISME Journal* 10: 225-239.

*2015*

37. Pinto A, DN Marcus, U Ijaz, Q Bautista-de los Santos, **GJ Dick** and L Raskin (2015). Metagenomic evidence for the presence of comammox nitrospira-like bacteria in a drinking water system. *mSphere* 1: e00054-15
36. **Dick GJ** and PYT Lam (2015). Omic approaches to microbial geochemistry. *Elements* 11: 403-408. DOI: 10.2113/gselements.11.6.403
35. Li M[2], BJ Baker[1], K Anantharaman[1], S Jain, J.A. Breier, and **GJ Dick** (2015). Genomic and transcriptomic evidence for scavenging of diverse organic compounds by widespread deep-sea archaea. *Nature Communications* 6: 8933.
34. Schofield MM, S Jain, **GJ Dick**, and DH Sherman (2015). Identification and analysis of the bacterial endosymbiont specialized for production of the chemotherapeutic natural product ET-743. *Environmental Microbiology* 17: 3964-3975.
33. Reed DC[2], JA Breier, H Jiang, K Anantharaman[1], CA Klausmeier, BM Toner, C Hancock, K Speer, A.M. Thurnherr, and **GJ Dick** (2015). Predicting the response of the deep-ocean microbiome to geochemical perturbations by hydrothermal vents. *The ISME Journal* 9: 1857-1869.

32. Sheik CS[2], EI Stevenson, P Den Uyl[1], CA Arendt, SM Aciego, and **GJ Dick** (2015). Glacial discharge associated microbial communities exhibit temporal and spatial stability and correlate with geochemistry. *Frontiers in Extreme Microbiology* 6: 495.
31. Sheik CS[2], K Anantharaman[1], JA Breier, JB Sylvan, KJ Edwards, and **GJ Dick** (2015). Spatially resolved sampling reveals dynamic microbial communities in rising hydrothermal plumes across a back-arc basin. *The ISME Journal* 9: 1434-1445.
30. Baker BJ[1], CS Lazar, A Teske, and **GJ Dick** (2015). Genomic resolution of linkages in carbon, nitrogen, and sulfur cycling among widespread estuary sediment bacteria. *Microbiome* 3:14. DOI: 10.1186/s40168-015-0077-6

*2014*

29. Castro-Contreras SI, MK Gingras, E Pecoits, NR Aubet, DA Petrsah, **GJ Dick**, and KO Konhauser (2014). Textural and geochemical features of freshwater microbialites from Laguna Bacalar, Quintana Roo, Mexico. *Palaios* 29: 192-209. doi: http://dx.doi.org/10.2110/palo.2013.063
28. Breier JA, DA Gomez-Ibanez, RT Sayre-McCord, R Sanger, C Rauch, M Coleman, SA Bennett, B Cron; CS Sheik[2], M Li[2], CR German, BM Toner, and **GJ Dick** (2014). A large volume particulate and water multi-sampler with in situ preservation for microbial and biogeochemical studies. *Deep-Sea Research Part* I 94: 195-206.
27. Vorobev A, S Jagadevan, S Jain, K Anantharaman[1], **GJ Dick**, S Vuilleumier, and JD Semrau (2014). Genomic and transcriptomic analyses of the facultative methanotroph Methylocystis sp. strain SB2 grown on methane or ethanol. *Applied and Environmental Microbiology* 80: 3044-3052.
26. Anantharaman K[1], MB Duhaime, JA Breier, K Wendt, BM Toner, and **GJ Dick** (2014). Sulfur oxidation genes in diverse deep-sea viruses. *Science* 344: 757-760.
25. Li M[2], BM Toner, BJ Baker[1], JA Breier, CS Sheik[2], and **GJ Dick** (2014). Microbial iron uptake as a mechanism for dispersing iron from deep-sea hydrothermal vents. *Nature Communications* 5: 3192. doi: 10.1038/ncomms4192
24. Reed DC[2], CK Algar, JA Huber, and **GJ Dick** (2014). Gene-centric approach to integrating environmental genomics and biogeochemical models. *Proceedings of the National Academy of Sciences* 111: 1879-1884. Doi: 10.1073/pnas.1313713111.
23. Li M[2], S Jain, BJ Baker[1], C Taylor[1], and **GJ Dick** (2014). Novel hydrocarbon monooxygenase genes in the metatranscriptome of a natural deep-sea hydrocarbon plume. *Environmental Microbiology* 16: 60-71. doi: 10.1111/1462-2920.12182
22. Sheik CS[2], S Jain, and **GJ Dick** (2014). Metabolic flexibility of enigmatic SAR324 revealed through metagenomics and metatranscriptomics. *Environmental Microbiology* 16: 304-317. doi: 10.1111/1462-2920.12165

*2013*

21. Baker BJ[1], CS Sheik[2], CA Taylor[1], S Jain, A Bhasi, JD Cavalcoli, and **GJ Dick** (2013). Community transcriptomic assembly reveals microbes that contribute to deep-sea carbon and nitrogen cycling. *The ISME Journal* 7: 1962-1973. doi: 10.1038/ismej.2013.85
20. **Dick GJ**, K Anantharaman[1], BJ Baker[1], M Li[2], DC Reed[2], and CS Sheik[2] (2013). The microbiology of deep-sea hydrothermal vent plumes: ecological and biogeographic linkages to seafloor and water column habitats. *Frontiers in Microbiology* 4: 124. doi: 10.3389/fmicb.2013.00124.

19. Anantharaman K[1], JA Breier, CS Sheik[2], and **GJ Dick** (2013). Evidence for hydrogen oxidation and metabolic plasticity in widespread deep-sea sulfur-oxidizing bacteria. *Proceedings of the National Academy of Sciences* 110: 330-335. doi: 10.1073/pnas.1215340110.

*2012*

18. Baker BJ[1], RA Lesniewski, and **GJ Dick** (2012). Genome-enabled transcriptomics reveals archaeal populations that drive nitrification in a deep-sea hydrothermal plume. *The ISME Journal* 6: 2269-2279. doi: 10.1038/ismej.2012.64.
17. Lesniewski RA, S Jain[1], PD Schloss, K Anantharaman[1], and **GJ Dick** (2012). The metatranscriptome of a deep-sea hydrothermal plume is dominated by water column methanotrophs and lithotrophs. *The ISME Journal* 6: 2257–2268. doi: 10.1038/ismej.2012.63.
16. Voorhies AA[1], BA Biddanda, ST Kendall, S Jain[1], DN Marcus[1], SC Nold, ND Sheldon, and **GJ Dick** (2012). Cyanobacterial life at low $O_2$: Community genomics and function reveal metabolic versatility and extremely low diversity in a Great Lakes sinkhole mat. *Geobiology* 10: 250-267. doi: 10.1111/j.1472-4669.2012.00322.x.

*2011*

15. Biddanda, BA, SC Nold, **GJ Dick**, ST Kendall, JH Vail, SA Ruberg, & CM Green (2011). Rock, water, microbes: underwater sinkholes in Lake Huron are habitats for ancient microbial life. *Nature Education Knowledge* 2(12):9.
14. Lee PKH, D Cheng, P Hu, KA West, **GJ Dick**, EL Brodie, GL Andersen, SH Zinder, J He, and L Alvarez-Cohen (2011). Comparative genomics of two newly isolated Dehalococcoides strains and an enrichment using a genus microarray. *The ISME Journal* 5: 1014-1024. doi: 10.1038/ismej.2010.202.

*2010*

13. Baker BJ, LR Comolli, **GJ Dick**, L Hauser, D Hyatt, B Dill, M Land, NC VerBerkmoes, RL Hettich and JF Banfield (2010). Enigmatic, ultra-small uncultivated Archaea. *Proceedings of the National Academy of Sciences* 107: 8806-8811. doi: 10.1073/pnas.0914470107.
12. **Dick GJ**, and BM Tebo (2010). Microbial diversity and biogeochemistry of the Guaymas Basin hydrothermal plume. *Environmental Microbiology* 12, 1334-1347. doi: 10.1111/j.1462-2920.2010.02177.x.

*2009*

11. **Dick GJ**, A Andersson, BJ Baker, SS Simmons, BC Thomas, and JF Banfield (2009). Community-wide analysis of microbial genome sequence signatures. *Genome Biology*, R85: 10. doi:10.1186/gb-2009-10-8-r85.
10. **Dick GJ**, BG Clement, SM Webb, FJ Fodrie, JR Bargar, and BM Tebo (2009). Enzymatic microbial Mn oxidation and Mn biooxide production in the Guaymas Basin deep-sea hydrothermal plume. *Geochimica et Cosmochimica Acta*, 73: 6517-6530. doi:10.1016/j.gca.2009.07.039.
9. Goltsman DSA, VJ Denef, SW Singer, NC VerBerkmoes, M Lefsrud, R Mueller, **GJ Dick**, C Sun, K Wheeler, A Zemla, BJ Baker, L Hauser, M Land, M Shah, MP Thelen, RL Hettich, and JF Banfield (2009). Community genomic and proteomic analyses of chemoautotrophic, iron-oxidizing Leptospirillum *rubarum* (group II) and *Leptospirillum ferrodiazotrophum* (group III) bacteria in acid mine drainage biofilms. *Applied and Environmental Microbiology,* 75: 4599-4615. doi: 10.1128/AEM.02943-08.

8. Andersen CR, **GJ Dick**, M Chu, JC Cho, R Davis, S Bräuer, and BM Tebo (2009). *Aurantimonas manganoxydans*, sp. nov. and *Aurantimonas litoralis*, sp. nov. : Manganese oxidizing representatives of a globally distributed clade of α-proteobacteria from the order *Rhizobiales*. *Geomicrobiology Journal*, 26: 189-198. doi: 10.1080/0149045090272484.

*2008*

7. **Dick GJ**, S Podell, HA Johnson, Y Rivera-Espinoza, R Bencheikh-Latmani, JK McCarthy, JW Torpey, BG Clement, T Gaasterland, and BM Tebo (2008). Genomic insights into Mn(II) oxidation by the marine alphaproteobacterium *Aurantimonas* strain SI85-9A1. *Applied and Environmental Microbiology*, 74: 2646-2658. doi: 10.1128/AEM.01656-07.
6. **Dick GJ**, JW Torpey, TJ Beveridge, and BM Tebo (2008). Direct identification of a bacterial Mn(II) oxidase, the multicopper oxidase MnxG, from spores of several different marine Bacillus species. *Applied and Environmental Microbiology*, 74: 1527-1534. doi: 10.1128/AEM.01656-07.

*2007*

5. Tebo BM, BG Clement, and **GJ Dick** (2007). Biotransformations of manganese, p. 1223-1238. *In* C. J. Hurst, R. L. Crawford, J. L. Garland, D. A. Lipson, A. L. Mills, and L. D. Stetzenbach (ed.), Manual of environmental microbiology, 3rd ed. ASM Press, Washington, DC.

*2006*

4. **Dick GJ**, YE Lee, and BM Tebo (2006). Manganese(II)-oxidizing Bacillus spores in Guaymas Basin hydrothermal sediments and plumes. *Applied and Environmental Microbiology*, 72: 3184-3190. doi: 10.1128/AEM.72.5.3184-3190.2006.
3. Mix L, **GJ Dick**, and FJ Stewart (2006). The Astrobiology Primer, an outline of general knowledge-Version 1, 2006. *Astrobiology*, 6: 735-813. doi: 10.1089/ast.2006.6.735.

*2005*

2. Webb SM, **GJ Dick**, JR Bargar, and BM Tebo (2005). Evidence for the presence of Mn(III) intermediates in the bacterial oxidation of Mn(II). *Proceedings of the National Academy of Sciences*, 102: 5558-5563. doi: 10.1073/pnas.0409119102.

*2004*

1. Tebo, BM, JR Bargar, BG Clement, **GJ Dick**, KJ Murray, D Parker, R Verity, and SM Webb (2004). Biogenic manganese oxides: Properties and mechanisms of formation. *Annual Reviews of Earth and Planetary Sciences*, 32: 287-328. doi: 10.1146/annurev.earth.32.101802.120213.

## *Other Publications: Books, Perspectives, Patents & Reports*

**Dick GJ** (2018). Genomic Approaches in Earth and Environmental Sciences. Wiley-Blackwell, 12 chapters, 176 pages. *ISBN: 978-1-118-70824-8*

**Dick GJ** (2017). Embracing the mantra of modelers and synthesizing omics, experiments, and models. *Environmental Microbiology*, 9: 18-20.

Sherman DS, M Kaufman-Schofield, S Jain, and GJ Dick (2015). U.S. Patent 20150361470. *Nonribosomal Peptide Synthetases*.

Druschel G, **GJ Dick**, and ES Boyd (2014). Geomicrobiology and Microbial Geochemistry 2014 Workshop Report. https://dx.doi.org/10.6084/m9.figshare.3083524.v1

Druschel G and **GJ Dick** (2014). Geochemistry and Microbial Geochemistry Workshop (meeting report). *Eos*, 95: 90.

Gilbert, JA, **GJ Dick**, B Jenkins, EE Allen, K Mackey, and EF DeLong (2014). Meeting report: Ocean 'omics science, technology and cyberinfrastructure: current challenges and future requirements (August 20-23, 2013). *Standards in Genomic Sciences* 9(3): 1252-1258. doi:10.4056/sigs.5749944

Baker BJ[1] and **GJ Dick** (2013). Omic Approaches in Microbial Ecology: Charting the Unknown. *Microbe* 8: 353-360.

### *Selected media coverage*

| | |
|---|---|
| 2016 | Sinkhole project featured on NPR's *All Things Considered*. |
| 2015 | Lake Erie project featured on NPR's *The Environment Report* |
| 2014 | Anantharaman et al. (2014) highlighted in *Nature Reviews Microbiology*, *Cell*, *Microbe*, and in numerous popular media outlets. |
| 2014 | Li et al. (2013) recommended by *Faculty of 1000* |
| 2013 | G. Dick profiled in *Microbe* magazine |
| 2012 | Lesniewski et al. (2012) recommended by *Faculty of 1000* |
| 2012 | Sinkhole research featured in *LSA Magazine* |
| 2011 | Sinkhole research featured by the *Discovery Channel* |
| 2011 | Sinkhole research featured in *Earth* magazine |

## Invited Lectures

| | |
|---|---|
| 2021 | University of Michigan School of Environment and Sustainability |
| 2020 | Geological Sciences of America annual meeting, keynote (virtual) |
| 2020 | NSF-DOE Rules of Life Algae Workshop |
| 2019 | Lamont-Doherty Earth Observatory, Columbia University |
| 2019 | Kent State University |
| 2019 | Rice University |
| 2019 | Proctor and Gamble Corporation, Cincinnati, Ohio. |
| 2018 | Bowling Green State University Department of Biological Sciences |
| 2018 | Cooperative Institute for Great Lakes Research, Partners Meeting |
| 2018 | Max Planck Institute for Marine Microbiology, Bremen, Germany |
| 2017 | Hope College Department of Biology |
| 2017 | Cooperative Institute for Great Lakes Research, Partners Meeting |
| 2017 | Ohio State University Department of Earth Sciences |
| 2017 | Borchardt Conference, Ann Arbor, MI |
| 2016 | Stanford University Department of Earth System Science |
| 2016 | International Society of Microbial Ecology Meeting, Montreal, Canada |
| 2016 | Johns Hopkins University Department of Geography and Environmental Engineering |
| 2016 | Geobiology Gordon Conference, Galveston, Texas |
| 2015 | Saturday Morning Physics, University of Michigan (public lecture) |
| 2015 | Goldschmidt Geobiology and Low-Temperature Geochemistry Town Hall |
| 2015 | University of Tennessee Department of Microbiology |
| 2015 | Montana State University Department of Microbiology |
| 2014 | University of British Columbia Department of Microbiology |
| 2013 | AGU Fall Meeting, San Francisco, CA |

| | |
|---|---|
| 2013 | Goldschmidt 2013, Florence, Italy (*keynote*) |
| 2013 | Geologists of Jackson Hole (public lecture) |
| 2013 | California Institute of Technology Geological and Planetary Sciences |
| 2012 | AGU Fall Meeting, San Francisco, CA |
| 2012 | Kellogg Biological Station, Michigan State University |
| 2012 | Eastern Michigan University Biology Department |
| 2012 | Argonne Soil Metagenomics Annual Meeting |
| 2012 | University of California-Davis Dept. of Geology |
| 2012 | Michigan State University Dept. of Microbiology & Molecular Genetics |
| 2012 | University of Michigan Tri-Dept. Symposium (EARTH, AOSS, Astro.) |
| 2012 | UM-CILER seminar for the NOAA Assistant Administrator (OAR) |
| 2012 | North Dakota State University Dept. of Geosciences |
| 2012 | North Dakota Dept. of Geological Sciences and Geological Engineering |
| 2012 | Wayne State University Dept. of Environmental Science/Geology |
| 2011 | Program in the Biomedical Sciences Seminar, University of Michigan |
| 2011 | MIT Biogeochemistry & Chemical Oceanography Seminar |
| 2011 | 2011 University of Michigan Bioinformatics Kickoff |
| 2011 | University of Kansas Dept. of Geology |
| 2011 | Keystone Symposium, Breckenridge, CO |
| 2011 | University of Michigan Dept. of Ecology and Evolutionary Biology |
| 2010 | Futures in Geobiology and Low-Temperature Geochemistry Workshop, Carnegie Institute of Washington |
| 2010 | Grand Valley State University & Annis Water Resources Institute |
| 2010 | NOAA Great Lakes Environmental Research Lab |
| 2009 | University of Michigan Microbiome Research Initiative, Department of Microbiology and Immunology |
| 2009 | University of Michigan School of Medicine Center for Computational Medicine and Bioinformatics |
| 2009 | Gordon Research Conference for Applied and Environmental Microbiology, Mt. Holyoke, MA |
| 2009 | American Chemical Society, Spring Meeting, Salt Lake City, UT |
| 2008 | University of Michigan School of Public Health 2008 Microbial Ecology pre-symposium seminar |
| 2007 | University of Michigan Dept. of Geological Sciences |
| 2006 | California Institute of Technology Geobiology Seminar |
| 2004 | Gordon Graduate Research Seminar in Bioinorganic Chemistry, Ventura, CA |

## Research Grants

| | |
|---|---|
| 2020-2023 | $144,000 (all to GJD), 56% IDC, Lawrence Livermore National Lab (prime sponsor) subcontract from U. Toledo. *Microbiome controls on harmful algal toxin production in Lake Erie*.<br>Role: U-M PI (Co-PIs Xavier Mayali and Dragan Isailovich) |
| 2020-2022 | $258,000 ($211,880 to GJD), 26% IDC, NOAA. *A Next Generation Research Database to Harness Great Lakes Environmental 'Omics Data*.<br>Role: PI (Co-PIs Vincent Denef and Melissa Duhaime) |

| | |
|---|---|
| 2020-2022 | $775,568 ($221,582 to GJD), 26% indirect, NOAA. *Linking genes to microbial traits key to the rise and demise of cyanobacterial harmful algal blooms*.<br>Role: Co-PI (PI Vincent Denef, Co-PI Melissa Duhaime) |
| 2020-2025 | $11,699,469 ($1,014,000 to GJD), 56% IDC, NIH. *Host and Microbial Metabolism in Graft versus Host Disease*.<br>Role: PI of Genomics and Bioinformatics Core (PI Pavan Reddy, U-M Medical School) |
| 2020-2022 | $199,999 (all to GJD), 56% IDC, Michigan Sea Grant (NOAA). *Determining how the ecophysiology of different Microcystis strains underpins succession and toxicity of harmful cyanobacterial blooms in Lake Erie*.<br>Role: PI (Co-PIs: Ed Verhamme and John Bratton, Limnotech; Craig Stow, NOAA-GLERL). |
| 2018-2023 | $479,525 ($361,340 to GJD), 55% indirect, NSF and NIEHS (prime), Bowling Green State University (direct). Lake Erie Center for Fresh Waters and Human Health<br>Role: U-M PI (Co-PI David Sherman). |
| 2018-2021 | $874,085 ($460,532 to GJD), 55% indirect, NSF Biological Oceanography. *The role of heterotrophic bacteria in protecting cyanobacteria from hydrogen peroxide in coastal systems*<br>Role: PI (Co-PIs: Rose Cory and George Kling, U-M). |
| 2018-2021 | $51,293, 55% indirect, subcontract from Ohio State University, via NOAA ECOHAB 2017: *Linking process models and field experiments to forecast algal bloom toxicity in Lake Erie*.<br>Role: U-M PI (PI Justin Chaffin, Ohio State University). |
| 2018-2021 | $69,300, 10% indirect, Cooperative Institute for Great Lakes Research (NOAA). *Development of a gene-based model of toxin production by Microcystis aeruginosa in Lake Erie*.<br>Role: PI (Co-PIs: Craig Stow, NOAA-GLERL and Ed Verhamme, Limnotech). |
| 2016-2021 | $387,151, 55.0% indirect, NSF Geobiology and Low-Temperature Geochemistry. *Revealing the interplay between light, sulfur cycling, and oxygen production in cyanobacterial mats*<br>Role: PI (Co-PIs: Wiebke Ziebis, USC; Jacob Waldbauer, U. Chicago; Bopi Biddanda, GVSU). |
| 2015-2021 | $226,033, 55.0% indirect, NSF. *GP-IMPACT: Broadening pathways to geosciences with an integrated program at The University of Michigan*.<br>Role: PI (Project Coordinator Jenna Munson) |
| 2018-2020 | $200,066, 29% indirect, Procter & Gamble. *Metagenomic insights into metabolic pathways and microbial interactions of the scalp microbiome*.<br>Role: Sole PI |

| | |
|---|---|
| 2014-2015 | $75,894 ($27,368 to GJD), 55.5% indirect, Cubist Pharmaceuticals. *DNA sequencing of 100 bacterial genomes provided by Cubist Pharmaceuticals*. Role: Co-PI (PI David Sherman) |
| 2014-2015 | $25,000, 0% indirect, Cooperative Institute for Great Lakes Research (NOAA). *Integrated field and laboratory investigation of links between nutrients, dissolved organic carbon, reactive oxygen species, and toxicity of harmful algal blooms*. Role: PI, 60% contribution (Co-PIs: Tim Davis, NOAA-GLERL). |
| 2014 | High throughput metagenomic sequencing (3 lanes of Illumina HiSeq; $0), Census of Deep Life, Sloan Foundation. *Microbial life in an underground ocean: Metagenomics of the Soudan Iron Mine* Role: Co-PI (Co-PIs Jon Badalamenti, Jeff Gralnick, Brandy Toner, U. Minnesota; Cody Sheik, U. Michigan). |
| 2013-2018 | $1,163,656 ($82,461 to GJD); 55.5% indirect, NSF. *Global Ocean Biogeochemical Mapping Enabled by an Autonomous Vertical Sampling Vehicle*. Role: Co-PI (PI John Breier, Co-PIs Mak Saito and Michael Jakuba, Woods Hole Oceanographic Institute). |
| 2013-2017 | $50,000, 0% indirect. Sloan Research Fellowship in Ocean Sciences. *Linking Microbiology and Geochemistry in the Deep Sea*. Role: PI |
| 2011-2014 | $99,978 (U-M portion: $78,461), 55.5% indirect, NSF. *EAGER: Collaborative Research: Genomic Insights into Proterozoic Geobiology – Single-Cell and Metagenomic Sequencing of Metabolically Versatile Purple Cyanobacteria*. Role: PI (Co-PIs: Bopi Biddanda, Grand Valley State University; Nathan Sheldon, U-M). |
| 2010-2014 | $1,718,987 (including $355,250 subcontract to WHOI; $235,531 subcontract to U. Minn.), 12.5% indirect. The Gordon and Betty Moore Foundation, Marine Microbiology Initiative. *Unveiling the Microbiology that Underpins Deep-Sea Biogeochemistry*. Role: PI (Co-PIs: John Breier and Houshuo Jiang, Woods Hole Oceanographic Institute; Brandy Toner, University of Minnesota; Patrick Schloss, U-M). |
| 2010-2014 | $771,644 ($245,300 to GJD), 55.5% indirect, NSF. *Collaborative Research: Integrating Geochemistry, Microbiology, and Hydrodynamics: A Model for Trace Element Transport and Fate in Hydrothermal Plumes*. Role: PI (PI John Breier, Woods Hole Oceanographic Institute; PI Brandy Toner, University of Minnesota). |
| 2010-2014 | $367,176, 54.5% indirect, NSF. *Linking Biogeochemistry and Microbial Community Dynamics in Deep-Sea Hydrothermal Plumes*. Role: PI |
| 2013 | High throughput DNA pyrosequencing services: 12 lanes of Illumina Hi-Seq sequencing (U-M portion: $0); DOE Joint Genome Institute Community Sequencing Program. *Insights into Metabolisms of the Cosmopolitan, Enigmatic Miscellaneous Crenarcheota Group (MCG) in Marine Sediments*. |

Role: Co-PI (PI U-M PhD student Brett Baker; Co-PIs Andreas Teske, University of North Carolina and Kai-Uwe Hinrichs, University of Bremen).

2013 $764,336 plus 30 days ship time ($0, one ship berth to GJD); 0% indirect, Schmidt Ocean Institute. *Robotic Exploration of the Mid-Cayman Rise using Sentry and Nereus*.
Role: Collaborator (PI Christopher German, Woods Hole Oceanographic Institute).

2011-2012 High throughput DNA pyrosequencing services ($0 to GJD). Census of Deep Life (CoDL), Deep Carbon Observatory, Alfred P. Sloan Foundation. *Deep Terrestrial Biosphere Observatory: Shield Brines, Microbial Mats, and Banded Iron Formations at the Soudan Iron Mine*.
Role: Co-PI (PI Jeffrey Gralnick and Co-PI Brandy Toner, University of Minnesota).

2010-2012 $244,019 ($0 to GJD), 12.5% indirect. The Gordon and Betty Moore Foundation. *Developing a Particulate Sampling and In Situ Preservation System for High Spatial and Temporal Resolution Studies of Microbial and Biogeochemical Processes*.
Role: Collaborator (PI John Breier, Woods Hole Oceanographic Institute)

2009-2010 5 plates of 454 Titanium DNA pyrosequencing services ($0 to GJD; ~$60,000 value). The Gordon and Betty Moore Foundation Marine Microbiology Initiative. *Metagenomics and Metatranscriptomics of Biogeochemistry in the Guaymas Basin Hydrothermal Plume*.
Role: PI

*Internal Grants, University of Michigan*

2016-2017 $60,000 ($20,000 to GJD), Mcubed, *Exploring the microbiogy of harmful algal blooms*.
Role: PI (Co-PIs Vincent Denef and Don Scavia).

2014-2015 $249,485 ($102,947 to GJD), 0% indirect, U-M Water Center. *Building Capacity for Freshwater Science: Integrating Microbial Genomics, Environmental Chemistry, and Ecosystem Processes to Understand Harmful Algal Blooms*.
Role: PI (Co-PIs Vincent Denef, U-M EEB and Tom Johengen, U-M CILER).

2013-2014 $60,000 ($20,000 to GJD), Mcubed. *Will Climate, Invasives and Toxicants Imperil Unique Biodiversity in the Great Lakes*?
Role: PI (Co-PIs Nathan Sheldon and Allen Burton).

2011-2013 $48,192, U-M Center for Computational Medicine and Bioinformatics (CCMB) Pilot Research Grant Program. *De Novo Assembly and Clustering of DNA Sequencing Reads from Metagenomic Samples*.
Role: Co-PI (PI Jim Cavalcoli, CCMB).

2009-2010 $7,500, U-M OVPR. *Molecular Biogeochemistry in Buoyant Hydrothermal Plumes at the Eastern Lau Spreading Center*.
Role: PI

2009-2010 $13,322, Rackham Faculty Research Grant, *Genomic Windows into Deep-Sea Microbial Biogeochemistry*.
Role: PI

## Courses Taught and Leaves Taken

*Course information*

| Number | Title | Format | Cr | Semesters Taught |
|---|---|---|---|---|
| EARTH 112 | Life in Extreme Environments | Lecture; mini-course | 1 | F10, W12, F13 |
| EARTH 112 | The Great Lakes | Lecture; mini-course | 1 | Sp20, F20 |
| EARTH 175 | The Microbial World | Lecture + discussion | 4 | W09, W10, W11, W13 |
| EARTH 202 | Environmental Science in the Rockies | Lecture + field + lab | 5 | S11, S12, S13, S14, S15, S16, S17, S18, S19 |
| EARTH 208/497 | Hot Topics in the Earth Sciences | Seminar | 1 | W11 |
| EARTH 219 | Introduction to Environmental Science | Lecture + lab | 4 | W18, W20 |
| EARTH 313 | Geobiology | Lecture + lab | 4 | F10, F12, F13, F15, F16, F17, F18, F19, F20 |
| EARTH 413 | Geomicrobiology | Lecture | 3 | W16 |
| EARTH 513 | Geomicrobiology | Lecture | 3 | F09, F11, W14 |
| EARTH 523 | Microbial Community Omics | Lecture + lab | 2 | F14, W17, W19, W21 |

*Enrollment & student evaluations*

Questions:
Q1: Overall, this was an excellent course.
Q2: Overall, this instructor was an excellent teacher.
Q3: I learned a great deal from this course (now Q1631 - This course advanced my understanding of the subject matter).
Q4: I had a strong desire to take this course.

Student responses: 5-strongly agree; 4-agree; 3-neutral; 2-disagree; 1-strongly disagree.

| AY | Term | Course | Cr.[a] | Enroll. | # student response | Q1 | Q2 | Q3 | Q4 |
|---|---|---|---|---|---|---|---|---|---|
| 2020-2021 | W2021 | EARTH 523 | 3 | 18 | 6 | 4.5 | 4.9 | 4.9 | 4.8 |
| | F2020 | EARTH 313 | 4 | 70 | 36 | 4.2 | 4.9 | 4.7 | 4.1 |
| | F2020 | EARTH 112 | 1 | 194 | 79 | 4.8 | 4.9 | 4.9 | 4.3 |
| | Sp2020 | EARTH 112 | 1 | 83 | 24 | 4.9 | 4.8 | 4.8 | 4.0 |
| 2019-2020 | W2020 | EARTH 219 | 3 | 117 | | | | | |
| | W2020 | EARTH 218 | 1 | 27 | | | | | |
| | F2019 | EARTH 313 | 4 | 57 | 48 | 4.45 | 4.81 | 4.70 | 4.02 |
| | S2019 | [b]EARTH202[c] | 5 | 18 | 18 | 5.00 | 5.00 | 5.00 | 4.50 |
| 2018-2019 | W2019 | EARTH 523 | 3 | 11 | 5 | 5.0 | 5.0 | 5.0 | 5.0 |
| | F2018 | EARTH 313[b] | 4 | 39 | 35 | 4.6 | 4.8 | 4.8 | 4.0 |
| | S2018 | EARTH 202[c] | 5 | 13 | 6 | 5.0 | 5.0 | 5.0 | 4.5 |
| 2017-2018 | W2018 | EARTH 219 | 4 | 46 | 38 | 4.71 | 4.94 | 4.67 | 4.04 |
| | F2017 | EARTH 313 | 4 | 35 | 28 | 4.71 | 4.91 | 4.75 | 4.54 |
| | S2017 | EARTH 202[c] | 5 | 19 | 20 | 5.00 | 4.96 | 4.94 | 4.77 |
| 2016-2017 | W2017 | EARTH 523 | 3 | 12 | 10 | 4.79 | 4.88 | 4.88 | 4.79 |
| | F2016 | EARTH 313 | 4 | 28 | 20 | 4.33 | 4.73 | 4.50 | 4.36 |
| | S2016 | EARTH 202 | 5 | 18 | 18 | 4.02 | 4.96 | 3.96 | 4.51 |
| 2015-2016 | W2016 | EARTH 413 | 3 | 27 | 14 | 4.10 | 4.50 | 4.21 | 4.13 |
| | F2015 | EARTH313[b] | 4 | 52 | 40 | 4.18 | 4.73 | 4.45 | 4.06 |
| | S2015 | EARTH 202[c] | 5 | 16 | 15 | 4.2 | 4.82 | 4.62 | 4.64 |
| 2014-2015 | W2015 | *4 cr. release from teaching for sabbatical* | | | | | | | |
| | F2014 | EARTH 523 | 2 | 12 | 8 | 4.83 | 4.83 | 4.50 | 4.70 |
| | S2014 | EARTH 202[c] | 5 | 8 | 8 | 4.92 | 5.00 | 4.92 | 4.17 |
| 2013-2014 | W2014 | EARTH 513 | 3 | 16 | 12 | 4.25 | 4.83 | 4.64 | 4.64 |
| | F2013 | EARTH 112 | 1 | 339 | 274 | 4.08 | 4.54 | 4.07 | 3.30 |
| | F2013 | EARTH 313[b] | 4 | 55 | 36 | 4.39 | 4.63 | 4.64 | 3.97 |
| | S2013 | EARTH 202[c] | 4 | 10 | 9 | 4.93 | 5.00 | 4.93 | 4.63 |
| 2012-2013 | W2013 | EARTH 175 | 4 | 58 | 40 | 4.32 | 4.81 | 4.65 | 3.67 |
| | F2012 | EARTH 313[b] | 4 | 47 | 40 | 3.83 | 4.55 | 3.98 | 4.00 |
| | S2012 | EARTH 202[c] | 4 | 15 | 15 | 4.71 | 4.82 | 4.96 | 4.78 |
| 2011-2012 | W2012 | EARTH 112 | 1 | 263 | 210 | 4.04 | 4.39 | 4.07 | 3.41 |
| | - | - | *4 cr. release from teaching for 3rd year review nurturance* - | | | | | | - |
| | F2011 | EARTH 513 | 3 | 13 | 10 | 4.67 | 4.50 | 4.79 | 4.50 |
| | S2011 | GEOSCI 202[c] | 4 | 18 | 18 | 4.75 | 4.85 | 4.86 | 4.86 |
| 2010-2011 | W2011 | GEOSCI 208/497 | 1 | 6 | 4 | 4.50 | 4.50 | 4.50 | 4.50 |
| | W2011 | GEOSCI 175 | 4 | 57 | 39 | 4.47 | 4.73 | 4.53 | 3.64 |
| | F2010 | GEOSCI 313[b] | 4 | 11 | 7 | 4.00 | 4.75 | 4.17 | 4.17 |
| | F2010 | GEOSCI 112 | 1 | 187 | 103 | 4.21 | 4.59 | 4.16 | 3.47 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2009-2010 | W2010 | GEOSCI 175 | 4 | 45 | 31 | 4.29 | 4.76 | 4.68 | 3.45 |
| | F2009 | GEOSCI 513 | 2 | 8 | 7 | 5.00 | 4.92 | 4.92 | 4.80 |
| | | | *2 cr. release from teaching for 2nd year* | | | - | - | - | - |
| 2008-2009 | W2009 | GEOSCI 175 | 4 | 32 | 13 | 3.92 | 4.06 | 4.00 | 3.88 |
| | F2008 | | *4 cr. release from teaching for 1st year* | | | - | - | - | - |

[a] Course Credit
[b] Co-taught with Jeff Wilson (50%);
[c] Co-taught with Chris Poulsen and Jena Johnson

## Students, Postdocs, and Staff Advised and Supervised

*PhD students, Primary Advisor (Dept. of Earth & Environmental Sciences unless noted)*

| Name | Years | Current Position & Affiliation |
|---|---|---|
| 9. Laura Reitz | 2020-present | |
| 8. Yun Suk Lee | 2019-present | |
| 7. Colleen Yancey | 2018-present | |
| 6. Jeseth Delgado* | 2016-2018 | Asst. Prof., Howard U. |
| 5. Derek Smith** | 2015-2020 | Postdoc, U. Michigan |
| 4. Sharon Grim | 2014-2019 | Postdoc, NASA Ames Research Center |
| 3. Brett Baker | 2010-2014 | Assistant Prof., University of Texas Austin |
| 2. Alex Voorhies | 2009-2014 | Synthetic Biology Consultant, Booz Allen Hamilton |
| 1. Karthik Anantharaman | 2009-2014 | Assistant Prof., University of Wisconsin, Madison |

*Co-Chair with Nancy Love, CEE
**Co-Chair with Tim Davis, BGSU

*MS students, Primary Advisor*

6. Matthew Medina, Earth and Environmental Sciences (2015-2017)
5. Jesse Fenno, Earth and Environmental Sciences CUGS (2015-2016)
4. Sunit Jain, Bioinformatics Program (no dissertation) (2009 – 2010)
3. Kathryn Iverson, Bioinformatics Program (no dissertation) (2009 – Fall 2011).
2. Chris Taylor, Bioinformatics Program (no dissertation) (2011).
1. Prashanna Balaji Venkatasubramanian, Bioinformatics Program (no dissertation) (2011 – 2012).

*Postdoctoral Fellows Hosted*

| Name (% sponsor) | Years | Current Position, Affiliation |
|---|---|---|
| 8. Sara Rivera (100%) | 2020-present | |
| 7. Jenan Kharbush (0%) | 2019-present | (PPFP Co-advised with Rose Cory) |
| 6. Kevin Meyer (100%) | 2015-2019 | Biologist, US Army Corps of Engineers |
| 5. Judith Klatt (100%) | 2015-2017 | Research Scientist, Max Planck Institute for Marine Microbiology |
| 4. Lauren Kinsman (33%) | 2013 | Research Scientist, Kent State University |
| 3. Cody Sheik (100%) | 2011-2015 | Assistant Prof., U. Minnesota-Duluth |
| 2. Meng Li (100%) | 2011-2014 | Assistant Prof., Shenzen University |
| 1. Daniel Reed (100%) | 2011-2014 | Director of Ocean Science, Global Spatial Technol. |

*Undergraduate students, Independent Research Advisor*

37. Helena Nitchsky (Winter 2020 – present)
36. Nicole Rappuhn (Winter 2020 – present)
35. Olivia Mathiesen (Winter 2020 – present, with Honors Thesis)
34. Janel LaPalm (Fall 2019 – present)
33. Lydia Stevens (Fall 2019 – Winter 2020)
32. Benjamin Nieman (Fall 2019 – present)
31. Raina Ruman (Fall 2018 – Winter 2020)
30. Claire Zwiers (Fall 2018 – present)
29. Will James (Fall 2018 – present)
29. Arianna Mann (Spring 2018 – Winter 2019)
28. Henry Schnaidt (Fall 2018 – Summer 2019)
27. Kirsten Nelson (Fall 2017 – Winter 2018)
26. Kendall Schissler (Fall 2017 – Summer 2019)
25. Michael Rader (Fall 2017 – Winter 2018)
24. McKenzie Powers (Summer 2017 – Winter 2018, with Honors Thesis)
23. Keith Hildwein (Winter 2017 – present)
22. Olivia Metcalf (Fall 2016 – Summer 2017)
21. Kirk Olsen (Fall 2016 – Summer 2017)
20. Kiah Lowe (Winter 2016 – Fall 2016)
19. Hui Chien Tan (Winter 2016 – Winter 2017)
18. Megan McConnell (Winter 2016)
17. Changrui Shi (Fall 2015 – Winter 2016)
16. Allison Sharrar (Fall 2014 – Winter 2015, with Honors Thesis).
15. Danielle Boshers (Fall 2013 – Winter 2015, with Honors Thesis).
14. Nicholas Aquilina (Fall 2013 – Fall 2015).
13. Grace Tsaloff (Fall 2013 – 2014).
12. Chelsea Mervenne; co-advised with Nathan Sheldon (Winter 2013 – Winter 2014).
11. Kathryn Gallagher; co-advised with Nathan Sheldon (Winter 2013 – Summer 2013).
10. Matthew Sabuda (Fall 2012 – Winter 2013).
9. Michael Balke (Fall 2012 – Summer 2013).
8. Paul Den Uyl (Fall 2012 – Summer 2013).
7. Issac Anderson (Summer 2012).
6. Clayton Wheeler, UROP student (Fall 2011 – Winter 2012).
5. Eva Kramer (Summer 2011 – Summer 2012).
4. Michael Lerner, UROP student (Fall 2010 – Winter 2012).
3. Daniel Marcus (Winter 2010 – Winter 2011).
2. Bridget Callahan, UROP student (Fall and Winter 2009).
1. Adam Essene, Oberlin College (Summer 2009).

*Research Scientists, Staff & Visiting Scholars Mentored/Hosted*

| **Name** | **Years** |
|---|---|
| Teal Furnholm (100%) | 2019-present |
| Robert Hein (50%) | 2017-present |
| Melissa Duhaime (0%) | 2012-2016 |

| | |
|---|---|
| Sunit Jain (100%) | 2012-2015 |
| Anders Andersson (100%) | 2011 |

*Dissertation Member* (PhD unless otherwise noted; 33 total)

| **Name** | **Year of Degree** |
|---|---|
| *Department of Earth & Environmental Sciences* | |
| Dhurba Pandey | in progress |
| Rebecca Dzombak | in progress |
| Yi Wang | in progress |
| Jenny Bowen | in progress |
| Timothy Gallagher | 2016 |
| Collin Ward | 2015 |
| Sae Yun Kwon | 2015 |
| Patrick Donovan | 2015 |
| Meghan King | 2013 |
| Qiaona Hu | 2011 |
| Devon Renock | 2010 |
| *Atmospheric, Oceanic and Space Sciences*: | |
| Yuxing Yun | 2012 |
| *Biochemistry*: | |
| Sam Slocum | 2017 |
| *Civil and Environmental Engineering*: | |
| Avery Carlson | in progress |
| Nadine Kotlarz | 2017 |
| Xunchang Fei | 2015 |
| Tara Clancy | 2014 |
| Jeongdae Im | 2011 |
| Sukhwan Yoon | 2010 |
| *Ecology and Evolutionary Biology*: | |
| Karl Romanowicz | in progress |
| Morgan Lindback | in progress |
| Kristel Sanchez | in progress |
| Anthony Wing | in progress |
| Nikesh Dahal | in progress |
| Byron Smith | 2018 |
| Marian Schmidt | 2018 |
| Jen-Pan Huang | 2016 |
| Tory Hendry | 2012 |
| *Microbiology & Immunology*: | |
| Matt Jenior | 2017 |
| Alyxandria Schubert | 2015 |

| | | |
|---|---|---|
| Michael Schillaci-Schofield | 2015 | |
| Joseph Zackuklar | 2014 | |

*School of Environment and Sustainability*:

| | | |
|---|---|---|
| Elizabeth Entwistle | 2016 | |

*External*

| | | |
|---|---|---|
| Celine Chantal Michiels | 2019 | *University of British Columbia Microbiology & Immunology* |
| Elisa Merz | 2020 | *Max Planck Institute for Marine Microbiology* |

## Service

### *Proposal Review Panels, Editorial Duties, Professional Societies*

| | |
|---|---|
| 2018-2019 | Member, Advisory Board, Geobiology Society: Special Publication Series |
| 2011-2017 | Proposal Review Panels: NSF Biological Oceanography, NSF Geobiology and Low-Temperature Geochemistry NASA Astrobiology: Exobiology and Evolutionary |
| 2014-present | Editorial Board, *Environmental Microbiology* |
| 2014-present | Subject Editor (Molecular Geomicrobiology), *Geobiology*. |
| 2012-present | Editorial Advisory Board, *Geobiology* |
| 2014-2015 | Co-Guest Editor (with Greg Druschel), *Elements* special issue on Geomicrobiology and Microbial Geochemistry (December, 2015). |
| 2002-present | Professional society memberships: American Geophysical Union; Geochemical Society; International Society for Microbial Ecology; American Society for Microbiology |

### *University Service*

| | |
|---|---|
| 2020 | Member, Promotion Review Committee for Dr. Ashootosh Tripathi for promotion to Research Associate Professor (Life Sciences Institute). |
| 2018 – present | Faculty Steering Committee, Biosciences Initiative on Global Change (4 hours total) |
| 2016 – present | Science Council, University of Michigan Water Center (5 hours per semester) |
| 2014 – present | Program Advisory Committee, Integrated Training in Epidemiology and Microbiome Science, a $2.5 million training grant awarded to U-M by the Burroughs Wellcome Fund (5 hours per semester). |
| 2019 (Winter) | Steering Committee, 2019 Water@Michigan event (10 hours total) |
| 2015 – 2016 | Faculty Committee on Environment and Sustainability Programs at the University of Michigan (2-10 hours per week). |
| 2014 – 2016 | Organizing Committee, Michigan Meeting: "Unseen Partners: Microbes in Human and Environmental Health" held May, 2016. |
| 2013 | Selection Committee for the Dow Sustainability Fellows Program. |
| 2013 | Advisory Committee Member for Arvind Venkataraman T32 Training Fellowship from the University of Michigan Multidisciplinary Training Program in Lung Disease. |
| 2013 | Core Team Member and Key Scientific Personnel, Moore and Sloan Foundations Data Science Competition and site visit to the University of Michigan. |

| | |
|---|---|
| 2012 | PitE GSI Selection Committee. |

*College Service*

| | |
|---|---|
| 2019-2020 | Steering Committee, LSA Theme Semester on the Great Lakes (6 hours total) |
| 2019 | Chair, Launch Committee for Assistant Professor Jordan Horowitz (6 hours total) |
| 2019 (Winter) | LSA Nominating Committee (charged with considering nominations and deciding the ballot for College-level elected positions: including the Executive Committee, Curriculum Committee, University Senate Assembly, and Ombudsperson; 5 hours total) |
| 2018 (Fall) | Search for Assessment and Evaluation Specialist for the College Undergraduate Education Division (conducted interviews and evaluated candidates). |
| 2017 | Launch Committee for Assistant Professor Melissa Duhaime (EEB) |

*Department Service (Dept. of Earth & Environmental Sciences unless otherwise noted)*

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|---|---|
| 2016-2021 | Associate Chair for Curriculum and Undergraduate Studies (includes assignment of faculty teaching, course scheduling, head of advising, head of curriculum committee) |
| 2019-present | Faculty mentor for Presidential Postdoc Jenan Kharbush |
| 2015-2021 | Department liaison for M-Sci |
| 2019 | Member, Search Committee for faculty position in Paleontology |
| 2018 | Faculty Promotion Committee for Jason Demers (Assistant to Associate Research Scientist) |
| 2018-present | Faculty Mentor for Assistant Professor Jena Johnson |
| 2018 | Member, Launch Committee for Assistant Professor Jena Johnson |
| 2018 | Member, Select Committee for promotion of Assistant Research Scientist Mark Rowe (SEAS) |
| 2016 | Chair, Search Committee for Faculty Search in Geobiology and Biological Oceanography |
| 2015-2016 | Member, Department Executive Committee |
| 2015-2016 | Member, Student Awards Committee |
| 2014-present | Faculty Mentor for Assistant Research Scientist, Assistant Professor Melissa Duhaime (EEB) |
| 2014 | Member, Tenure Committee for Brian Arbic |
| 2012-present | Graduate student application review, Department of Ecology and Evolutionary Biology (6-9 applications per year) |
| 2012-2013 | Member, Search Committee for faculty position in aqueous/low-temperature geochemistry |
| 2012 | Member, Turner Awards Committee |
| 2010-2016 | Department Outreach Coordinator |
| 2010 | Member, Search Committee for faculty position in microbial ecology (Department of Ecology and Evolutionary Biology) |
| 2010 | Collaborator, proposal to NSF Opportunities for Enhancing Diversity in the Earth Sciences |
| 2009-present | Faculty Sponsor and Developer of EARTH 494, Experiential Learning |
| 2009-2016 | Faculty Advisor, Geoclub |

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| 2009-present | Guest lectures: EARTH 325, Env. Geochemistry (2), EARTH 315, Earth Materials (3); EARTH 346, Plate Tectonics; EEB 401, Microbial Ecology |
| 2009-2010 | Student Awards Committee |
| 2008-2010 | Graduate Program & Admissions Committee |
| 2009 | Alumni Board talk |
| 2008 | Graduate student recruiting: seminars to undergraduates at Carleton College, Macalester College, and the University of Minnesota, Twin Cities |

## *Diversity, Equity, and Inclusion and Community Service/Outreach*

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| 2020 | Instructor, Wolverine Pathways mini-class on "The Great Lakes". 8 lectures, mandatory office hours with 17 students; July 2020. |
| 2019 | Participant, Building STEM at Michigan Workshop (full day) |
| 2017-2019 | NextProf Mentor and Earth & Environmental Sciences roundtable participant. |
| 2018 | Panelist, NextProf Meeting |
| 2017 | Panelist, NextProf Meeting |
| 2014 | Moderator, University of Michigan Water Center Workshop |
| 2012-present | Faculty advisor and lecturer, Earth Camp |
| 2012 | Lead for screening and discussion of Switch energy documentary to Earth Camp M-STEM, and MITE programs (~150 high school students). |
| 2012 | Lecture to IDEA Institute Banquet |
| 2011 | Lecture to IDEA Institute Programs Reunion (students & parents). |
| 2010-2011 | IDEA Institute Advisory Board. |
| 2010-2011 | Director and lecturer, IDEA Institute Summer Geoscience Camp. |
| 2010-2011 | Lectures and lab tours to Great Lakes Summer Fellows Program. |
| 2010 | Lecture to IDEA Institute Summer Chemistry Camp. |
| 2008 | Roundtable leader, 2008 Microbial Ecology Symposium, a campus-wide initiative hosted at the School of Public Health. |
| 2006 | Instructor and Curriculum Developer, Birch Aquarium at Scripps Summer Camp |
| 2005 | Instructor, The Ocean Institute, Dana Point, CA. Ridge2000 SEAS ("Student Experiments at Sea"), Teacher Workshop on Deep-Sea Hydrothermal Vents |
| 2003-2005 | Laboratory mentor, one high school teacher, four high school students, one undergraduate student. |

## *Other Professional Service*

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|---|---|
| 2016-2017 | Assisted in Organization of International Geobiology Society Meeting, Banff Canada |
| 2016 | Theme Team Member, Goldschmidt 2017. |
| 2015 | Organizer of workshop, "Omic Approaches for Freshwater Science", Bowling Green State University, April 2015. |
| 2014 | Steering Committee Member, EarthCube RCN |
| 2013 | Proposal co-author and workshop co-coordinator, NSF workshop on "Geomicrobiology and Microbial Geochemistry" (October 10-12, 2013, Chicago, IL). |
| 2013-present | Advisory Board Member, NSF Chemical Oceanography Biogeochemistry of the Great Lakes initiatve. |

2012-2013 Member, Theme Team, Goldschmidt 2013, Theme 17, Biogeochemistry: Activities, mechanisms, and cycles.

2007-present Ad hoc reviewer:

- Funding agencies (~6 proposals per year): NSF (Geobiology & Low Temperature Geochemistry, Biological Oceanography, Marine Geology and Geophysics, Antarctic Organisms and Ecosystems, Center for Dark Energy Biosphere Investigations Postdoctoral Fellowship Program); NASA (Exobiology and Evolutionary Biology); Gordon and Betty Moore Foundation (Marine Microbiology Initiative); Schmidt Ocean Institute; American Philosophical Society; CCMB Pilot Program (University of Michigan Medical School); Marine Science & Technology Foundation, Canada Research Chairs Program (2013-2014)
- Journals (~12-25 papers per year): *Science*, *Nature Microbiology*, *Applied and Environmental Microbiology*, *Environmental Science & Technology*, *Geobiology, Msystems, Molecular Systems Biology, Limnology and Oceanography, ISME Journal, PNAS, FEMS Microbiology Ecology, Population Ecology, Geochimica et Cosmochimica Acta, Biogeosciences, G-cubed, Journal of the Royal Society Interface, Freshwater Biology, Free Radical Biology and Medicine, Water Research*

2010-2013 Workshop participant:

- "Grand Challenges for the Great Lakes" (Michigan State University, 2014);
- "EarthCube: Ocean Omics" (NSF, 2013);
- "Biogeochemistry of the Great Lakes" (NSF, 2013);
- "Merging Complex -omic Data and Computational Ecosystem Models" (Gordon and Betty Moore Foundation, 2013);
- "Future Directions in Geobiology and Low-Temperature Geochemistry" (NSF, 2010).

2014 Co-convener, "Geo-omics" session at Goldschmidt 2015, Prague.

2010 Co-convener, "Geomicrobiology of Mid-Ocean Ridge Systems: Connections Among Subseafloor, Plume, and Low-Temperature Alteration Environments" session at Goldschmidt 2010, Knoxville, TN.

2009 Convener, "The genomics of geochemistry" session at Goldschmidt 2009, Davos, Switzerland.

2005 Co-convener, NASA Astrobiology Graduate Conference, La Jolla, CA.

## Oceanographic research cruise experience

OASES2 Cruise. Mid-Cayman Rise. Port Everglades, FL to Port Everglades, FL, January 6 – 28, 2012. R/V *Atlantis*, ROV *Jason*. Chief Scientist Chris German.

GoCAL3 Cruise. Guaymas Basin, Gulf of California. San Diego, CA to San Diego, CA, July 23 – August 13, 2005. R/V *New Horizon*, Chief Scientists Fred Prahl and Brian Popp.

GoCAL2 Cruise. Guaymas Basin, Gulf of California. San Diego, CA to San Diego, CA, January 25 – February 9, 2005. R/V *New Horizon*, Chief Scientists Fred Prahl and Brian Popp.

GoCAL1 Cruise. Guaymas Basin, Gulf of California. San Diego, CA to San Diego, CA, July 7 – 22, 2004. R/V *New Horizon*, Chief Scientists Fred Prahl and Brian Popp.

Black Sea Cruise. Istanbul, Turkey to Istanbul, Turkey, April 14 - May 10, 2003. R/V *Knorr*, Chief Scientists George Luther, Jim Murray.

HOLA-1 Cruise. Guaymas Basin, Gulf of California. San Diego, CA to Manzanillo, Mexico. April, May 2002. R/V *Atlantis*, DSV *Alvin*, Chief Scientist James P. Cowen.

Extreme 2001 Cruise. 9°N, East Pacific Rise. Puntarenas, Costa Rica to Manzanillo, Mexico. October, November, 2001. R/V *Atlantis*, DSV *Alvin*, Chief Scientist Craig Cary.