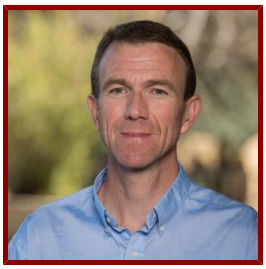
Stanford



Christopher Francis

Professor of Earth System Science, of Oceans and Senior Fellow at the Woods Institute for the Environment

Bio

ACADEMIC APPOINTMENTS

- Professor, Earth System Science
- Professor, Oceans
- Senior Fellow, Stanford Woods Institute for the Environment
- Member, Bio-X

ADMINISTRATIVE APPOINTMENTS

- Graduate Student, Research, Scripps Institution of Oceanography (UCSD), (1994-2000)
- U.S. Environmental Protection Agency STAR Graduate Fellow, University of California, San Diego, (1995-1998)
- Harry Hess Postdoctoral Fellow, Geosciences, Princeton University, (2001-2002)
- NSF Postdoctoral Research Fellow, Microbial Biology, Princeton University, (2002-2003)
- Assistant Professor of Geological & Environmental Sciences, Stanford University, (2003-2008)
- Assistant Professor, Environmental Earth System Science, Stanford University, (2008-2010)
- Affiliated Faculty Member, Woods Institute for the Environment , Stanford University, (2009-2011)
- Associate Professor, Earth System Science, Stanford University, (2010-2017)
- Senior Fellow, Woods Institute for the Environment, Stanford University, (2011- present)
- Professor, Earth System Science, Stanford University, (2017- present)
- Professor, Oceans, Stanford University, (2022- present)

HONORS AND AWARDS

- Highest Honors, Biol.; Cowell College Honors; Mark T. MacMillan Award, Undergrad Research,..., University of California, San Diego (1994)
- STAR (Science To Achieve Results) Graduate Fellow, U.S. Environmental Protection Agency (1995-1998)
- Harry Hess Postdoctoral Fellow, Geosciences, Princeton University (2001)
- Postdoctoral Research Fellow, Microbial Biology, National Science Foundation (2002-2003)
- Frederick E. Terman Fellow, Stanford University (2004)
- Nominee - Packard Fellowship in Science and Engineering, Stanford University (2006)
- Faculty Early Career Development (CAREER) Award Recipient, National Science Foundation, Division of Ocean Sciences (2009-2014)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Board Member, Stanford Introductory Seminars Advisory Board, Stanford University (2016 - 2019)

- EESS Faculty Search Committee for Coastal Human-Environment Systems position, Stanford University (2013 - 2014)
- Co-Organizer and Chair, "Populations and Activity of Ammonia-Oxidizing and Denitrifying Organisms in Coastal Waters" Session at the American Society for Limnology and Oceanography (ASLO) Aquatic Sciences Meeting, New Orleans, Louisiana, February 2013, American Society for Limnology and Oceanography (ASLO) (2013 - 2013)
- Co-Chair, School of Earth Sciences GeoBiology Faculty Search Committee, Stanford University (2011 - 2014)
- Chair, EESS Graduate Admissions Committee, Stanford University (2011 - 2013)
- Organizer, Environmental Earth System Science (EESS) Departmental Seminar, Stanford University (2011 - 2011)
- Associate Editor, Frontiers in Aquatic Microbiology (2010 - present)
- Co-Chair, Environmental Venture Project (EVP) Selection Committee, Woods Institute for the Environment (2010 - 2012)
- Chair/Organizer of “New Processes and Players in the Marine Microbial Nitrogen Cycle” Symposium at the 110th General Meeting of the American Society for Microbiology (ASM) General Meeting, San Diego, CA, May 2010, American Society for Microbiology (ASM) (2010 - 2010)
- Invited Speaker for the 13th International Symposium on Microbial Ecology (ISME- 13) symposium entitled “Shifting Paradigms in Major Biogeochemical Cycles”, (August 22- 27, 2010; Seattle, WA), International Symposium on Microbial Ecology (ISME- 13) (2010 - 2010)
- Invited Speaker for the 2010 Gordon Research Conference on “Marine Microbes: From Genes to Global Cycles”, (July 4-9, 2010; Tilton School, Tilton, NH), Gordon Research Conference (2010 - 2010)
- Member, Woods Faculty Leadership Working Group, Woods Institute for the Environment (2010 - 2010)
- Earth Sciences Council Member, Stanford University (2009 - 2011)
- Co-Chair/Organizer of “Functional Diversity in Nitrifying Organisms: Response to stress and substrate availability, evolution and niche differentiation” Session at the 1st International Conference on Nitrification (ICoN1), Louisville, KY, July 2009, International Conference on Nitrification (ICoN1) (2009 - 2009)
- Co-Organizer and Chair of “Linking Microbial Communities to Geochemical Cycling” Session at the American Society for Limnology and Oceanography (ASLO) Aquatic Sciences Meeting, Nice, France, January 2009, American Society for Limnology and Oceanography (ASLO) (2009 - 2009)
- Green Earth Sciences Building Space Committee, Stanford University (2009 - 2009)
- Invited Speaker - Scripps Institution of Oceanography, University of California at San Diego, Marine Biology Seminar (November 2009), Scripps Institution of Oceanography, University of California at San Diego (2009 - 2009)
- Invited Speaker for the 1st International Conference on Nitrification (ICoN1), special session on “Diversity and abundance of nitrifier communities and their contributions to nitrification, nitrifier denitrification and anammox processes”, University of Louisville, Louisville, KY (July 2009), International Conference on Nitrification (ICoN1 (2009 - 2009)
- Invited speaker - Environmental Microbiology/Microbial Ecology (EMME) Seminar Series, University of California-Santa Barbara (May 2009), University of California-Santa Barbara (2009 - 2009)
- Invited speaker - Ocean Sciences Seminar Series, University of California-Santa Cruz (May 2009), University of California-Santa Cruz (2009 - 2009)
- Reviewer for ‘Nitrification’ textbook, published by American Society for Microbiology (ASM) Press, American Society for Microbiology (ASM) (2009 - 2009)
- Editorial Board member, Applied and Environmental Microbiology journal (2008 - present)
- EESS Graduate Admissions Committee, Stanford University (2008 - 2011)
- Environmental Venture Project (EVP) Committee/Panel Member, Woods Institute for the Environment (2008 - 2010)
- EESS Faculty Search Committee for Marine Chemist position, Stanford University (2008 - 2009)
- Hopkins Marine Station (HMS) Faculty Search Committee for Marine Cell Biologist position, Stanford University, (2008 - 2009)
- Co-Organizer and Chair of “Saline Environments” Session at the US-China Geomicrobiology Workshop, Beijing, China, October 2008, US-China Geomicrobiology Workshop (2008 - 2008)
- Invited speaker - Department of Biological Sciences, Northern Arizona University (2008 - 2008)
- Invited speaker - Environmental Engineering Seminar Series, University of California-Berkeley (October 2008), University of California-Berkeley (2008 - 2008)
- Invited speaker - Environmental Microbiology Seminar Series, University of California-Berkeley (May 2008), University of California-Berkeley (2008 - 2008)
- Earth Sciences Council Member, Stanford University (2007 - 2009)

- Co-Organizer of “Microbial communities along environmental gradients: Linking microbial ecology and the ecosystem” Symposium at the Ecologicial Society of America/SER Joint Meeting, San Jose, CA, August 2007, Ecologicial Society of America/SER (2007 - 2007)
- Invited speaker - Department of Microbiology, University of Tennessee (2007 - 2007)
- Panelist - National Science Foundation, Microbial Interactions & Processes (MIP) Program, National Science Foundation (2007 - 2007)
- Editorial Advisory Board member, Geobiology journal (2006 - present)
- SES Faculty Search Committe Member for Physical Oceanographer position, Stanford University (2006 - 2007)
- Co-Chair of “Archaea in the Earth System” Session at the American Geophysical Union National (Fall) | Meeting, San Francisco, CA, American Geophysical Union (2006 - 2006)
- Environmental Earth Science (EES) Undergraduate Curriculum Committee Member, Stanford University (2006 - 2006)
- Invited Speaker - 2006 Gordon Research Conference on Organic Geochemistry, special session on “Molecular Signatures of Archaea and Archaeal Processes” (Holderness School, Plymouth, NH), Gordon Research Conference (2006 - 2006)
- Invited Speaker - ‘Functional Genes’ Symposium, International Geobiology 2006 Course, University of Southern Californa - Wrigley Marine Science Center (Catalina Island, CA), University of Southern Californa - Wrigley Marine Science Center (2006 - 2006)
- Panelist - National Science Foundation, Antarctic Biology & Medicine (ABM) Program, National Science Foundation (2006 - 2006)
- Speaker, Inaugural Global Bioreactor Network (GBN) Workshop, Nanyang Technological University (November 2006), Inaugural Global Bioreactor Network (GBN) (2006 - 2006)
- Speaker, School of Earth Sciences Faculty Forum, Stanford University (2006 - 2006)
- GES Graduate Admissions Committee Member, Stanford University (2005 - 2008)
- SES Diversity Committee Member, Stanford University (2005 - 2006)
- Invited Participant, American Academy of Microbiology Colloquium on Marine Microbial Diversity: The Key to Earth's Habitability, San Francisco, CA, American Academy of Microbiology (2005 - 2005)
- Invited Speaker - Agouron Institute Microbial Mat Meeting, La Jolla, CA, Agouron Institute (2005 - 2005)
- Invited Speaker - Biological Oceanography Seminar, School of Oceanography, University of Washington (2004 - 2004)
- Invited Speaker - Division of Geological and Planetary Sciences,, California Institute of Technology (2004 - 2004)
- Invited speaker - Environmental Engineering and Science Seminar, Department of Civil & Environmental Engineering, Stanford University (2004 - 2004)
- Invited speaker - Ocean Sciences Department, University of California at Santa Cruz (2004 - 2004)
- Founder and Organizer, Geomicrobiology & Microbial Geochemistry (GMG) Seminar Series, Stanford University (2003 - present)
- Manuscript Reviewer for Applied and Environmental Microbiology, Aquatic Microbial Ecology, Aquatic Sciences, Archives of Microbiology, Biogeosciences Discussions, Environmental Microbiology, Environmental Science & Technology, FEMS Microbiology Ecology, FEMS Microbiology Reviews, Geochimica et Cosmochimica Acta, Geomicrobiology Journal, Journal of Applied Microbiology, Limnology & Oceanography, Microbiology, Molecular Ecology, Proceedings of the National Academy of Sciences USA, The ISME Journal, and Trends in Microbiology journals, Professional Journals (2003 - present)
- Ph.D. Dissertation Committee Member for 27 students, Stanford University (2003 - present)
- Proposal Reviewer for NSF Antarctic Biology and Medicine, Biocomplexity, Biogeosciences, Biological Oceanography, CAREER, Chemical Oceanography, Ecological Biology, Ecosystem Studies, Environmental Genomics, Geobiology and Low- Temperature Geochemistry, Microbial Genome Sequencing, and Microbial Observatories & Microbial Interactions and Processes (MO/MIP) programs, Various (2003 - present)
- University Chair of Oral Examination (Ph.D. Dissertation Defense) for 12 Stanford Ph.D. students (from 6 departments), Stanford University (2003 - present)
- Invited speaker - Department of Geography and Environmental Engineering, Johns Hopkins University (2003 - 2003)
- Invited speaker - Department of Geological & Environmental Sciences, Stanford University (2002 - 2002)
- Invited speaker - Department of Microbiology and Immunology, University of British Columbia (2002 - 2002)

PROFESSIONAL EDUCATION

- Ph.D., Scripps Institution of Oceanography, University of California, San Diego , Marine Biology (2000)
- B.A., University of California, Santa Cruz , Biology (w/ Highest Honors) (1994)

LINKS

- Environmental Microbiology: https://environmentalmicrobiology.stanford.edu/

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Research

My research interests center on the molecular, biogeochemical, and ecological aspects of the microbially-mediated cycling of nitrogen and metals in the environment. In particular, the major research avenues actively pursued in my laboratory are focused on examining the diversity and activity of microorganisms involved in manganese cycling, denitrification, and especially nitrification within coastal, estuarine, and select terrestrial systems. We use a combination of molecular, genomic, cultivation, and biogeochemical approaches to study functionally-important groups of bacteria and archaea in both the laboratory and the field.

Teaching

My courses emphasize the critical role of microbes in shaping the geochemistry of our planet, over modern or geological time scales. Topically, these courses span the 'geo-microbiology' continuum from redox chemistry to molecular phylogeny, and from metagenomics to the hands-on cultivation of environmental microbes that catalyze key redox transformations. The unifying theme of all my courses is the emphasis on the immense metabolic and phylogenetic diversity of prokaryotes that drive the biogeochemical cycling of elements in nature. Collectively, these courses provide a strong 'microbial foundation' for students with backgrounds in biogeochemistry, geosciences, environmental engineering, as well as microbiology.

Teaching

COURSES

2025-26

- Discover Monterey Bay through Oceanography, Ecology, and Literature: OCEANS 10SC (Sum)
- Environmental Microbial Genomics: ESS 259, OCEANS 269 (Win)
- Exploring the Critical Interface between the Land and Monterey Bay: Elkhorn Slough: EARTHSYS 46N, ESS 46N (Spr)
- Get to Know Your Oceans: OCEANS 300A (Aut)
- Get to Know Your Oceans: OCEANS 300B (Win)
- Get to Know Your Oceans: OCEANS 300C (Spr)

2024-25

- Discover Monterey Bay through Oceanography, Ecology, and Literature: OCEANS 10SC (Sum)
- Exploring the Critical Interface between the Land and Monterey Bay: Elkhorn Slough: EARTHSYS 46N, ESS 46N (Spr)
- Geomicrobiology: BIO 190, EARTHSYS 158, EARTHSYS 258, ESS 158, ESS 258 (Win)
- Get to Know Your Oceans: OCEANS 300A (Aut)
- Get to Know Your Oceans: OCEANS 300B (Win)
- Get to Know Your Oceans: OCEANS 300C (Spr)

2023-24

- Discover Monterey Bay through Oceanography, Ecology, and Literature: OCEANS 10SC (Sum)
- Environmental Microbial Genomics: ESS 259 (Win)
- Exploring the Critical Interface between the Land and Monterey Bay: Elkhorn Slough: EARTHSYS 46N, ESS 46N (Spr)

- Get to Know Your Oceans: OCEANS 300A (Aut)

2022-23

- Exploring the Critical Interface between the Land and Monterey Bay: Elkhorn Slough: EARTHSYS 46N, ESS 46N (Spr)
- Geomicrobiology: EARTHSYS 158, EARTHSYS 258, ESS 158, ESS 258 (Win)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Emily Paris, Rebecca Salcedo

Doctoral Dissertation Advisor (AC)

Jessica Bullington, Benjamin Shapero

Doctoral (Program)

Jessica Bullington, Benjamin Shapero

Publications

PUBLICATIONS

- **Crystal structure of 3-hydroxypropionyl-CoA synthetase (ADP-forming) from Nitrosopumilus maritimus.** *Current research in structural biology*
  Johnson, J., Tosun, B., Yilmaz, M., Tolar, B. B., Yoshikuni, Y., Francis, C. A., Doukov, T., Yokoi, S., Wakatsuki, S., DeMirci, H.
  2026; 11: 100189
- **Floodplain nitrifiers harbor the genetic potential for utilizing a wide range of organic nitrogen compounds.** *mSystems*
  Rasmussen, A. N., Langenfeld, K., Tolar, B. B., Perzan, Z., Maher, K., Cardarelli, E. L., Bargar, J. R., Boye, K., Francis, C. A.
  2025: e0082925
- **Microbial Nitrogen Removal in South San Francisco Bay: Does It Play a Role in Eutrophication Resistance?** *ESTUARIES AND COASTS*
  Czapla, K. M., Owens, M. S., Cornwell, J. C., Senn, D. B., Francis, C. A., Chelsky, A.
  2025; 48 (2)
- **Metagenome-Assembled Genomes for Oligotrophic Nitrifiers From a Mountainous Gravelbed Floodplain.** *Environmental microbiology*
  Rasmussen, A. N., Tolar, B. B., Bargar, J. R., Boye, K., Francis, C. A.
  2025; 27 (3): e70060
- **Metabolic capacity is maintained despite shifts in microbial diversity in estuary sediments.** *ISME communications*
  Langwig, M. V., Sneed, S. L., Rasmussen, A., Seitz, K. W., Lee, J. A., Anantharaman, K., De Anda, V., Francis, C. A., Baker, B. J.
  2025; 5 (1): ycaf182
- **Microbial Community of a Sandy Beach Subterranean Estuary is Spatially Heterogeneous and Impacted by Winter Waves.** *Environmental microbiology*
  Bullington, J. A., Langenfeld, K., Phaneuf, J. R., Boehm, A. B., Francis, C. A.
  2024; 26 (12): e70009
- **Crystal structure of the 4-hydroxybutyryl-CoA synthetase (ADP-forming) from nitrosopumilus maritimus.** *Communications biology*
  Johnson, J., Tolar, B. B., Tosun, B., Yoshikuni, Y., Francis, C. A., Wakatsuki, S., DeMirci, H.
  2024; 7 (1): 1364
- **Globally distributed marine Gemmatimonadota have unique genomic potentials.** *Microbiome*
  Gong, X., Xu, L., Langwig, M. V., Chen, Z., Huang, S., Zhao, D., Su, L., Zhang, Y., Francis, C. A., Liu, J., Li, J., Baker, B. J.
  2024; 12 (1): 149
- **Dynamics and activity of an ammonia-oxidizing archaea bloom in South San Francisco Bay.** *The ISME journal*
  Rasmussen, A., Francis, C. A.
  2024

- **Diverse and unconventional methanogens, methanotrophs, and methylotrophs in metagenome-assembled genomes from subsurface sediments of the Slate River floodplain, Crested Butte, CO, USA.** *mSystems*
  Rasmussen, A. N., Tolar, B. B., Bargar, J. R., Boye, K., Francis, C. A.
  2024: e0031424
- **Pelagic metagenome-assembled genomes from an estuarine salinity gradient in San Francisco Bay.** *Microbiology resource announcements*
  Rasmussen, A. N., Francis, C. A.
  2023: e0080023
- **Ecophysiology and genomics of the brackish water adapted SAR11 subclade IIIa.** *The ISME journal*
  Lanclos, V. C., Rasmussen, A. N., Kojima, C. Y., Cheng, C., Henson, M. W., Faircloth, B. C., Francis, C. A., Thrash, J. C.
  2023
- **Simulation of anoxic lenses as exporters of reactivity in alluvial aquifer sediments** *GEOCHIMICA ET COSMOCHIMICA ACTA*
  Babey, T., Boye, K., Tolar, B., Engel, M., Noel, V., Perzan, Z., Kumar, N., Francis, C. A., Bargar, J. R., Maher, K.
  2022; 334: 119-134
- **Thousands of small, novel genes predicted in global phage genomes.** *Cell reports*
  Fremin, B. J., Bhatt, A. S., Kyrpides, N. C.
  2022; 39 (12): 110984
- **Genome-Resolved Metagenomic Insights into Massive Seasonal Ammonia-Oxidizing Archaea Blooms in San Francisco Bay.** *mSystems*
  Rasmussen, A. N., Francis, C. A.
  1800: e0127021
- **Genome-Resolved Metagenomic Insights into Massive Seasonal Ammonia-Oxidizing Archaea Blooms in San Francisco Bay** *MSYSTEMS*
  Rasmussen, A. N., Francis, C. A.
  2022; 7 (1)
- **Diverse ecophysiological adaptations of subsurface Thaumarchaeota in floodplain sediments revealed through genome-resolved metagenomics.** *The ISME journal*
  Reji, L., Cardarelli, E. L., Boye, K., Bargar, J. R., Francis, C. A.
  2021
- **Structural insights into bifunctional thaumarchaeal crotonyl-CoA hydratase and 3-hydroxypropionyl-CoA dehydratase from Nitrosopumilus maritimus.** *Scientific reports*
  Destan, E., Yuksel, B., Tolar, B. B., Ayan, E., Deutsch, S., Yoshikuni, Y., Wakatsuki, S., Francis, C. A., DeMirci, H.
  2021; 11 (1): 22849
- **Response of Lower Sacramento River phytoplankton to high-ammonium wastewater effluent** *Elementa: Science of the Anthropocene*
  Strong, A. L., Mills, M. M., Huang, I. B., van Dijken, G. L., Driscoll, S. E., Berg, G. M., Kudela, R. M., Monismith, S. G., Francis, C. A., Arrigo, K. R.
  2021; 9(1)
- **The Beach Aquifer Microbiome: Research Gaps and Data Needs** *Frontiers in Environmental Science*
  Archana, A., Francis, C. A., Boehm, A. B.
  2021
- **` Stability of Floodplain Subsurface Microbial Communities Through Seasonal Hydrological and Geochemical Cycles** *FRONTIERS IN EARTH SCIENCE*
  Tolar, B. B., Boye, K., Bobb, C., Maher, K., Bargar, J. R., Francis, C. A.
  2020; 8
- **Metagenome-assembled genomes reveal unique metabolic adaptations of a basal marine Thaumarchaeota lineage** *The ISME Journal*
  Reji, L., Francis, C. A.
  2020
- **Diverse Thaumarchaeota Dominate Subsurface Ammonia-oxidizing Communities in Semi-arid Floodplains in the Western United States.** *Microbial ecology*
  Cardarelli, E. L., Bargar, J. R., Francis, C. A.
  2020

- **Time series assessment of Thaumarchaeota ecotypes in Monterey Bay reveals the importance of water column position in predicting distribution-environment relationships** *Limnology and Oceanography*
  Tolar, B. B., Reji, L., Smith, J. M., Blum, M., Pennington, J. T., Chavez, F. P., Francis, C. A.
  2020
- **In-depth Spatiotemporal Characterization of Planktonic Archaeal and Bacterial Communities in North and South San Francisco Bay.** *Microbial ecology*
  Rasmussen, A. N., Damashek, J. n., Eloe-Fadrosh, E. A., Francis, C. A.
  2020
- **Depth-differentiation and seasonality of planktonic microbial assemblages in the Monterey Bay upwelling system** *Frontiers in Microbiology*
  Reji, L., Tolar, B. B., Chavez, F. P., Francis, C. A.
  2020
- **Depth distributions of Nitrite Reductase (nirK) Gene Variants Reveal Spatial Dynamics of Thaumarchaeal Ecotype Populations in Coastal Monterey Bay.** *Environmental microbiology*
  Reji, L., Tolar, B. B., Smith, J. M., Chavez, F. P., Francis, C. A.
  2019
- **Differential co-occurrence relationships shaping ecotype diversification within Thaumarchaeota populations in the coastal ocean water column** *ISME JOURNAL*
  Reji, L., Tolar, B. B., Smith, J. M., Chavez, F. P., Francis, C. A.
  2019; 13 (5): 1144–58
- **Nitrosarchaeum** *Bergey's Manual of Systematics of Archaea and Bacteria*
  Tolar, B. B., Mosier, A. C., Lund, M. B., Francis, C. A.
  John Wile & Sons, Inc. in association with Bergey's Manual Trust.2019
- **Microbial Nitrogen Cycling in Estuaries: From Genes to Ecosystem Processes** *ESTUARIES AND COASTS*
  Damashek, J., Francis, C. A.
  2018; 41 (3): 626–60
- **Nutrient transport suggests an evolutionary basis for charged archaeal surface layer proteins.** *The ISME journal*
  Li, P. N., Herrmann, J. n., Tolar, B. B., Poitevin, F. n., Ramdasi, R. n., Bargar, J. R., Stahl, D. A., Jensen, G. J., Francis, C. A., Wakatsuki, S. n., van den Bedem, H. n.
  2018
- **Deep nirS amplicon sequencing of San Francisco Bay sediments enables prediction of geography and environmental conditions from denitrifying community composition** *ENVIRONMENTAL MICROBIOLOGY*
  Lee, J. A., Francis, C. A.
  2017; 19 (12): 4897–4912
- **Convergence and contrast in the community structure of Bacteria, Fungi and Archaea along a tropical elevation-climate gradient.** *FEMS microbiology ecology*
  Peay, K. G., von Sperber, C., Cardarelli, E., Toju, H., Francis, C. A., Chadwick, O. A., Vitousek, P. M.
  2017; 93 (5)
- **Spatiotemporal Characterization of San Francisco Bay Denitrifying Communities: a Comparison of nirK and nirS Diversity and Abundance** *MICROBIAL ECOLOGY*
  Lee, J. A., Francis, C. A.
  2017; 73 (2): 271-284
- **Controls of nitrogen cycling evaluated along a well-characterized climate gradient.** *Ecology*
  von Sperber, C., Chadwick, O. A., Casciotti, K. L., Peay, K. G., Francis, C. A., Kim, A. E., Vitousek, P. M.
  2017
- **Integrated structural biology and molecular ecology of N-cycling enzymes from ammonia-oxidizing archaea.** *Environmental microbiology reports*
  Tolar, B. B., Herrmann, J. n., Bargar, J. R., van den Bedem, H. n., Wakatsuki, S. n., Francis, C. A.
  2017; 9 (5): 484–91

- **Regional patterns in ammonia-oxidizing communities throughout Chukchi Sea waters from the Bering Strait to the Beaufort Sea** *AQUATIC MICROBIAL ECOLOGY*
  Damashek, J., Pettie, K. P., Brown, Z. W., Mills, M. M., Arrigo, K. R., Francis, C. A.
  2017; 79 (3): 273–86
- **Variable Nitrification Rates Across Environmental Gradients in Turbid, Nutrient-Rich Estuary Waters of San Francisco Bay** *ESTUARIES AND COASTS*
  Damashek, J., Casciotti, K. L., Francis, C. A.
  2016; 39 (4): 1050-1071
- **Factors influencing nitrification rates and the abundance and transcriptional activity of ammonia-oxidizing microorganisms in the dark northeast Pacific Ocean** *LIMNOLOGY AND OCEANOGRAPHY*
  Smith, J. M., Damashek, J., Chavez, F. P., Francis, C. A.
  2016; 61 (2): 596-609
- **Indigenous arsenic(V)-reducing microbial communities in redox-fluctuating near-surface sediments of the Mekong Delta** *GEOBIOLOGY*
  Ying, S. C., DAMASHEK, J., Fendorf, S., Francis, C. A.
  2015; 13 (6): 581-587
- **Benthic ammonia oxidizers differ in community structure and biogeochemical potential across a riverine delta** *FRONTIERS IN MICROBIOLOGY*
  Damashek, J., Smith, J. M., Mosier, A. C., Francis, C. A.
  2015; 5
- **Spatiotemporal relationships between the abundance, distribution, and potential activities of ammonia-oxidizing and denitrifying microorganisms in intertidal sediments.** *Microbial ecology*
  Smith, J. M., Mosier, A. C., Francis, C. A.
  2015; 69 (1): 13-24
- **Ammonium Uptake by Phytoplankton Regulates Nitrification in the Sunlit Ocean** *PLOS ONE*
  Smith, J. M., Chavez, F. P., Francis, C. A.
  2014; 9 (9)
- **Differential contributions of archaeal ammonia oxidizer ecotypes to nitrification in coastal surface waters.** *ISME journal*
  Smith, J. M., Casciotti, K. L., Chavez, F. P., Francis, C. A.
  2014; 8 (8): 1704-1714
- **Microbial biogeography across a full-scale wastewater treatment plant transect: evidence for immigration between coupled processes** *APPLIED MICROBIOLOGY AND BIOTECHNOLOGY*
  Wells, G. F., Wu, C. H., Piceno, Y. M., Eggleston, B., Brodie, E. L., DeSantis, T. Z., Andersen, G. L., Hazen, T. C., Francis, C. A., Criddle, C. S.
  2014; 98 (10): 4723-4736
- **Spatiotemporal relationships between the abundance, distribution and potential activities of ammonia-oxidizing and denitrifying microorganisms in intertidal sediments** *Microbial Ecology*
  Smith, J. M., Mosier, A. C., Francis, C. A.
  2014: 13–24
- **Ammonium uptake by phytoplankton regulates nitrification in the sunlit ocean.** *PloS one*
  Smith, J. M., Chavez, F. P., Francis, C. A.
  2014; 9 (9)
- **Benthic ammonia oxidizers differ in community structure and biogeochemical potential across a riverine delta.** *Frontiers in microbiology*
  Damashek, J., Smith, J. M., Mosier, A. C., Francis, C. A.
  2014; 5: 743-?
- **Distributed microbially- and chemically-mediated redox processes controlling arsenic dynamics within Mn-/Fe-oxide constructed aggregates** *GEOCHIMICA ET COSMOCHIMICA ACTA*
  Ying, S. C., Masue-Slowey, Y., Kocar, B. D., Griffis, S. D., Webb, S., Marcus, M. A., Francis, C. A., Fendorf, S.
  2013; 104: 29-41
- **Adaptation of nitrifying microbial biomass to nickel in batch incubations** *APPLIED MICROBIOLOGY AND BIOTECHNOLOGY*

Yeung, C., Francis, C. A., Criddle, C. S.
2013; 97 (2): 847-857

- **Measurements of nitrite production in and around the primary nitrite maximum in the central California Current** *BIOGEOSCIENCES*
Santoro, A. E., Sakamoto, C. M., Smith, J. M., Plant, J. N., Gehman, A. L., Worden, A. Z., Johnson, K. S., Francis, C. A., Casciotti, K. L.
2013; 10 (11): 7395-7410

- **Transitions in nirS-type denitrifier diversity, community composition, and biogeochemical activity along the Chesapeake Bay estuary.** *Frontiers in microbiology*
Francis, C. A., O'Mullan, G. D., Cornwell, J. C., Ward, B. B.
2013; 4: 237-?

- **Ecophysiology of an Ammonia-Oxidizing Archaeon Adapted to Low-Salinity Habitats** *MICROBIAL ECOLOGY*
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