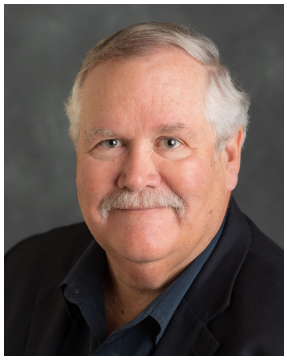
BIOGRAPHY AND BIBLIOGRAPHY

As of 9/16/22

Personal



Terry Clyde Hazen

Born: February 7, 1951, Pontiac, Michigan

Married: June 12, 1972, to Gayle Kanne Reinecke (textiles retailing, library resources, marketing, retired)
Two children: Tracy Heather (40 years), Brooks Trevor (37 years)

Hobbies: photography, SCUBA diving (Nitrox certified), flying (licensed private pilot), handicrafts, and sailing

Business Address: University of Tennessee
Department of Civil & Environmental Engineering
Department of Microbiology
Department of Earth & Planetary Sciences
Graduate Program in Genome Science & Technology
Bredesen Center
Director, Methane Center, ISSE
507 SERF
325 John D. Tickle Engineering Building
851 Neyland Drive
Knoxville, TN 37996-2313
Phone: (865) 974-7709, Fax: -2669
Email: tchazen@utk.edu

Oak Ridge National Laboratory
Biosciences Division
Building 1520, Room 327, MS-6342
Oak Ridge, TN 37831-6342
Phone: 865-576-8085
Fax: 865-241-1187
Email: hazentc@ornl.gov

Home Address: 1213 Night Hawk Lane
Knoxville, TN 37923
Cell Phone: (707) 631-6763
Email: tchazen@comcast.net

Education

Michigan State University, East Lansing, Michigan, 1969-74
- Bachelor of Science with honor, 1973
  - Major: Interdepartmental Biology
- Master of Science, 1974
  - Major: Interdepartmental Biology
  - Specialty: Parasitology

Wake Forest University, Winston-Salem, North Carolina, 1975-8
- Doctor of Philosophy, 1978
  - Major: Parasitology-Ecology
  - Minor: Microbiology-Immunology
  - Unique Skills: Electron Microscopy (Transmission and Scanning), Computer Programming

Special Training and Certificates

Advanced Media (TV & newspaper interviews) 30 hrs.
Flow Cytometry 40 hrs.
Bioremediation 16 hrs.
HAZTRAIN 40 hrs.
HAZTRAIN (Supervisor) 8 hrs.
Quality Assurance 40 hrs.
Fire Warden 3 hrs.
DNA analysis 16 hrs.
Field Property Administrator 8 hrs.
Subcontract Technical Representative 16 hrs.
Geologic Modeling of Depositional Environments 24 hrs.
Laser Safety Training 4 hrs.
Authorized Derivative Classifier 12 hrs.
Principle Centered Leadership Training 16 hrs.
Myers/Briggs Training 16 hrs.
CPR and First Aid 8 hrs.
Rad Worker 1&2 16 hrs.

Professional, Teaching, and Research Experience

Governor's Chair and Professor, University of Tennessee, Department of Civil & Environmental Engineering, College of Engineering, Department of Microbiology, Department of Earth & Planetary Sciences, College of Arts and Sciences, Center for Environmental Biotechnology, Genome Science Technology Program, 2011-Present, Bredesen Center 2013-Present, Joint Institute for Biological Sciences 2011-present.
Faculty Fellow, Oak Ridge National Laboratory, Biosciences Division, 2011-present.
Director, Methane Center, 2017-present.
Director, Institute for Secure and Sustainable Environment, 2015-2018.
Pacific Northwest National Laboratory's Promotion Advisory Committee, 2012-present.
Elected Senator, University of Tennessee Faculty Senate 2014-2017.
Chair, University of Tennessee Laboratory Safety Committee, 2014-present.

Committees: Member Advisory Board "Program for Excellence and Equity in Research" (PEER) NIH-IMSD program 2014-2015, Member CEE Head Search Committee 2014-2015, Member CEE Goodrich Chair Search Committee 2011-2013, Member CEE Water Resources Search Committee 2012-2013. Member EPS Isotope Geochemist Search Committee 2012-2013. Member College of Engineering Awards Committee 2013, 2014, 2016, Search Committee Associate Vice Chancellor for Research and Development UT, 2017, Beckman Scholars Program application Committee UT, 2017, Member Provost Search Committee 2017-2018, Member Search Committee Vice Chancellor for Research 2018-2019.

Senior Scientist, Earth Sciences Division, Lawrence Berkeley National Laboratory, University of California, 2003-2011.
Program Director, Deepwater Horizon Oil Spill Systems Biology, Energy Biosciences Institute, UCB-BP-LBNL-UIUC. 2010-2011.
Program Director, Microbial Enhanced Hydrocarbon Recovery, Energy Biosciences Institute, UCB-BP-LBNL-UIUC. 2009-2011.
Director, Microbial Communities Division, Joint BioEnergy Institute, Lawrence Berkeley National Laboratory. 2007-2011
Co-Director, Virtual Institute for Microbial Stress and Survival, Lawrence Berkeley National Laboratory. 2002-2011.
Head, Center for Environmental Biotechnology, Lawrence Berkeley National Laboratory, University of California, 1999-2011.
Head, Ecology Department (Microbial Ecology & Environmental Engineering Department), Lawrence Berkeley National Laboratory, University of California, 1998-2011
Lead, Environmental Remediation Technology Program, Lawrence Berkeley National Laboratory, University of California, 1998-2003.
Director, Bioremediation Education Science and Technology (BEST) Program, 1999-2001.
Member Scientific Advisory Committee Oklahoma EPSCOR in Bioenergy, 2009-2013.
Member, LBNL Professional Staff Committee, 2011-2011.
Chair, Institutional Biosafety Committee, Lawrence Berkeley National Laboratory, 2009-2011.
Member Lead-Lab Council, Subsurface Contaminant Focus Area, USDOE Environmental Management, 1999-2002.
Chairman, Field Research Review Panel, USDOE Natural and Accelerated Bioremediation Program, 1999-2007.

Member, Oakland USDOE Site Technology Coordination Group, 1998-2002.
Member, Bay Area Defense Conversion Action Team (BADCAT), 1998-2002.
Member, USDOE EM Strategic Laboratory Council, 1998-2003.
Member, California Environmental Business Council, 1998-2000.
Environmental Remediation Technology Department, Head, Lawrence Berkeley National Laboratory, University of California, 1998-1998.
Staff Scientist, Earth Sciences Division, Lawrence Berkeley National Laboratory, University of California, 1998-2003.
Environmental Biotechnology Section Manager, Savannah River Technology Center, Westinghouse Savannah River Company, 1996-1998.
Biotechnology Group Manager, Savannah River Technology Center, Westinghouse Savannah River Company, 1995-1996.
Biotechnology Group Leader, Westinghouse Savannah River Company, Savannah River Technology Center, 1993-1995.
Member USDOE Biotechnology Interlaboratory Council, 1994-1998, 1999-2005
Member SRS Engineering Council, 1993-1998.
Fellow Scientist, Westinghouse Savannah River Company, Savannah River Technology Center, 1993-1998.
Principal Scientist, Westinghouse Savannah River Company, Savannah River Laboratory, 1989-1993.
Scientist, E. I. DuPont de Nemours, and Company, Savannah River Laboratory, 1987-1989.
Chairman, USDOE Ad-Hoc Panel on Bioremediation, In Situ Integrated Program, Office of Technology Development, 1989-1994.
Temporary Graduate Professor, Graduate School, University of Alabama 2015-2018.
Guest Professor, Harbin Institute of Technology, Harbin, China. 2013-2018.
Honorary Professor, Guangdong Institute of Microbiology, Guangzhou, China. 2008-2011.
Honorary Professor, Central South University, Changsha, China. 2006-2010.
Adjunct Professor, Department of Biology, George Mason University, Virginia. 2001-2005.
Adjunct Professor, Department of Microbiology, University of Georgia, Athens, Georgia. 1997-2000
Adjunct Professor, Department of Civil and Environmental Engineering, Utah State University, Logan, Utah, 1989-1998.
Adjunct Associate Professor, Department of Biology, University of South Carolina, Columbia, SC, 1988-1998.
Adjunct Professor, Department of Biology, Wake Forest University, Winston-Salem, North Carolina, 1988-1998.
Adjunct Professor, Department of Biology, University of Puerto Rico, Río Piedras, Puerto Rico, 1988-1990.
Adjunct Professor of Marine Sciences, Department of Marine Sciences, the University of Puerto Rico at Mayagüez 1980-1988.
Professor, University of Puerto Rico, Río Piedras, Puerto Rico, 1985-8.
Associate Professor, University of Puerto Rico, Río Piedras, Puerto Rico, 1982-5.
Assistant Professor, University of Puerto Rico, Río Piedras 1979-82.
Graduate Student Advisor 1982-4.
Committees: Graduate (Chairman 1980-4) 1980-4, Recruitment 1980-2 (Chairman 1981-2), Personnel (Chairman 1985-7) 1985-7, Library 1979-84, MARC-Steering 1979-84, Microbiology Study 1980-4, Math Study 1981, Ph. D. Steering 1982-7 (Chairman 1983-5), Faculty Computer 1984-7, Delegate for UPR to the National Association of State Universities and Land Grant Colleges 1982, Special Emphasis Sub-Committee for Graduate Studies UPR Río Piedras Campus 1983, Faculty Advisor to BetaBetaBeta 1984-7, MBRS Advisory Committee 1985-7, Advisory Committee Medical Campus NIH-RCMI Program for the University of Puerto Rico 1985-7, Search Committee for Dean of Natural Sciences 1986, Curriculum evaluation 1985-6, Member Advisory Board "Program for Excellence and Equity in Research" (PEER) NIH-IMSD program 2014-2015, Search Committee for Goodrich Chair in Civil & Environmental Engineering, University of Tennessee, 2012-2014, Search Committee for Water Resources Position in Civil & Environmental Engineering, UT, 2012-2013, Search Committee for Isotope Geochemist Position in Earth & Planetary Sciences, UT, 2012-2013, Faculty Senate UT, 2014-2017, Search Committee for Chair of Civil & Environmental Engineering, UT, 2014-2015, Chair of University Laboratory Safety Committee, UT, 2014-present, Faculty Appeals Committee UT, 2013-2014, Centers Review Committee UT, 2015-2016, Chancellors Honorary Degree Committee UT, 2015-2019, University System Relations Committee UT, 2016-17, Chancellors Awards Committee, UT, 2017, Search Committee Associate Vice Chancellor for Research and Development UT, 2017, Beckman Scholars Program application Committee UT, 2017, Member Provost search Committee 2017-2018, Member Vice Chancellor for Research Search Committee. 2018-2019. Chairperson Vice Chancellor for Research Committee on Covid-19 testing recommendations for Fall 2020.
Advisory Committee NSF-EPSCOR in Puerto Rico 1985-7
Interim Chairman of the Department of Biology 1984-5.
Protagonist, University of Puerto Rico, Río Piedras campus. PROPHET Computer Network, NIH Biotechnology Resources Program, Division of Research Resources. 1983-7.
Consultant in Computer Assisted Instruction, University of Puerto Rico National Science Foundation CAUSE Grant 1979-82.
Consultant to La Famosa Food Industries, San Juan, PR. Microbiological contamination of food stuffs 1981-2.

Consultant to Applied Scientific Computers, Caguas, PR. Computer applications to laboratories: training and software 1983-1987.
Research Associate, Wake Forest University, Winston-Salem, North Carolina, 1978-9. Courses: Seminar in Computer Applications in Biology.
Research Assistant, Wake Forest University, Winston-Salem, North Carolina, 1977.
Teaching Assistant, Wake Forest University, Winston-Salem, North Carolina, 1975-8. Courses: Aquatic Ecology, Intermediate and Introductory Biology.
Research Technician, Savannah River Ecology Laboratory, Aiken, SC, 1974-5.

Courses Taught
General Microbiology, Food Microbiology, Applied Microbiology, Parasitology, Computer Applications in Science, Microbial Ecology, Advances in Immunology, Seminar in Tropical Coral Reefs, Seminar in Academia, Topics in Environmental Microbiology, Seminar in Protozoology, Biological Oceanography, General Biology, Hazardous Waste Management, Topics in Microbial & Molecular Genetics, Academic Careers, Environmental Systems Biology.

Reviewer
Legislation: South Carolina Department of Health and Environmental Control, California State Water Resources Control Board, California Environmental Protection Agency.

Proposals: National Science Foundation, National Institutes for Health, US Department of Energy, National Oceanographic and Atmospheric Administration, US Department of Commerce, US Department of Interior, US Department of Agriculture, Sea Grant, North Carolina Board of Science and Technology, Water Resources Research Institute, US Environmental Protection Agency, Idaho EPSCoR, Montana EPSCoR, US Forest Service, Oklahoma EPSCoR, US State Department, Oak Ridge Associated Universities.

Journals: mBio* (2022-2025), Environmental Science and Technology, Journal of Soil Contamination, Bioremediation Journal, Environmental Microbiology*, Microbial Biotechnology*, Applied and Environmental Microbiology*, Microbial Ecology, Current Opinions and Biotechnology*, Water Research, Current Microbiology, Transactions of the American Microscopical Society, Journal of Parasitology, Journal of Protozoology, Journal of the Helminthological Society of Washington, Journal of Fish Diseases, International Journal of Toxicity Assessment, BIOS, Canadian Journal of Microbiology, Transactions of the American Fisheries Society, Journal of Wildlife Diseases, American Midland Naturalist, Caribbean Journal of Science, Journal of Applied Bacteriology, Ecology, Limnology and Oceanography, Hydrobiologia, Freshwater Invertebrate Biology, Micronesia, PlosOne, Chemosphere, Groundwater, Frontiers in Microbiology*, International Journal of Molecular Sciences, Progress in Earth and Planetary Science, Science of the Total Environment, Environmental Science and Pollution Research, Microbiome, Life: The Excitement of Biology*.
* Editorial Board.

Community Activities
Head Coach Pee Wee Football (AA: 13-16 years old) 1983.
Committee member, Five-year plan for the Richmond County School System, Augusta, Georgia
Head Judge for Microbiology State Science Fair 1986-7, Microbiology Judge for International Science Fair 1986, Head Judge for International Science Fair 1987, Head Judge Science Fair Aiken County Middle Schools.
Member, Board of Directors, Mayo Community Inc., Augusta, GA. 1989-1990.
Member and Chairman, Computer Committee Warren Roads Elementary School, Augusta, GA. 1991-3, 1994-5.
Co-Chairperson, Environment and Energy Committee, Warren Road Elementary School, Augusta, GA. 1992-3.
Co-President, PTA, Warren Road Elementary School, Augusta, GA. 1993-4.

Special Awards and Honors
Tickle College of Engineering 2021 Special Service Award.
American Society for Microbiology 2021 ASM Award for Environmental Research.
Wake Forest College Board of Visitors Emeritus program (CBOVE) Since 1988.
Scholarship Recognition Award, Civil & Environmental Engineering, University of Tennessee, April 26, 2019
2018 Highly Cited Author, Web of Science November 28, 2018.
The University of Tennessee, Service Excellence and Leadership Award, Laboratory Safety Visionary 2016
The University of Tennessee Chapter of Sigma Xi, President 2017-Present.
The University of Tennessee Chapter of Sigma Xi, Vice President/President Elect 2015-2017.

Distinguished Lecture Series, College of Engineering, University of Tennessee, March 9, 2015
Scholar Recognition Award, Civil & Environmental Engineering, University of Tennessee, April 25, 2014
Fellow American Association for the Advancement of Science. November 25, 2013
Environmental Science & Technology 2011 Best Paper Award. May 8, 2012
Jay and Bev Grimes Distinguished Lecture Gulf Coast Research Laboratory July 29, 2011
Pacific Northwest National Laboratory Outstanding Lecturer Award June 13, 2011
Darden Lecture University of Alabama 2011
Member of Environmental Microbiology Committee, Public and Scientific Affairs Board, ASM 2008-2016
Biology Faculty of 1000 2008-2011
ASM Branch Lectureships Program 2006-2008
DOE BER Distinguished Scientist Award 2005-2010
Wake Forest University Distinguished Biology Alumni Lecture 1999
United Nations Global Water Quality Task Force 1997
Expert Reviewer for Swiss Environmental Biotechnology Program 11/96.
R&D 100 Award 1996.
George Westinghouse Innovation Award for 1996.
Federal Laboratory Consortium Award for Excellence in Technology Transfer for 1996.
R&D 100 Award 1995.
American Academy of Microbiology, Fellow. Since 1991.
Central Savannah River Chapter Sigma Xi, President 1995-6.
Central Savannah River Chapter Sigma Xi, Vice President 1994-5.
DOE Biotechnology Interlaboratory Council, Councilor 1994-2001.
George Westinghouse Signature Award for excellence Corporate 1994.
2 George Westinghouse Signature Award for excellence Site 1994.
George Westinghouse Innovation Award for 1993.
2 George Westinghouse Signature Award for excellence Site 1993.
Westinghouse Savannah River Company Interim Waste Management Total Quality Award November 1990.
Westinghouse Savannah River Company Savannah River Technology Center Total Quality Award October 1993.
Savannah River Site Central Environmental Committee, Environmental Awareness Award for 1993.
George Westinghouse Bronze Signature Award for excellence 1990.
George Westinghouse Gold Signature Award for Excellence 1989.
Board of Visitors, Wake Forest University 1988–1992.
First Prize 1983 Science Writing Award Puerto Rico Institute of Culture.
Wake Forest Sigma Xi Research Presentation Award 1977
Who's Who in Medicine and Healthcare (since 1995)
Who's Who in American Education (since 1991)
American Men and Women of Science (since 1980)
Who's Who of Emerging Leaders in America (since 1987)
Who's Who in Science and Engineering (since 1991)
Who's Who in the Southeast (since 1979)
Who's Who in the World (since 1986)
Who's Who in the Frontiers of Science and Technology (since 1984)
Men of Achievement (since 1985)
Directory of North American Fisheries and Aquatic Scientists (since 1978)
San Juan Sigma Xi, Vice President 1983-1987
Puerto Rico Society for Microbiology, President-Elect 1984-5, President 1985-6.
American Society for Microbiology, Alternate Councilor Aquatic and Terrestrial Division 1986-7, Councilor 1987-9.

Awards and Honors of Students

Saad Abd Ar Rafie. Tennessee Fellowship for Graduate Excellence, University of Tennessee. August 2017 to present.
Maria F. Campa. Outstanding Abstract Award: The Impacts of the Biocide Glutaraldehyde on Community Structures and Degradation Potential in Streams Impacted by Hydraulic Fracturing. American Society for Microbiology Microbe 2017. June 4, 2017.
Sheridan Brewer, Exhibition of Undergraduate Research and Creative Achievement (EUReCA) Honorable Mention Poster in the College of Arts and Sciences, University of Tennessee, Knoxville. April 14, 2016
Charles Paradis, GSA Grant $1375. April 11, 2016

Hannah Woo chosen as one of ninety students in the United States and Canada to receive a $15,000 Scholar Award from the Philanthropic Educational Organization Sisterhood. “Environmental Engineering Student Wins Prestigious Award to Pursue Biofuel Research” http://tntoday.utk.edu/2016/04/08/environmental-engineering-student-wins-prestigious-award-pursue-biofuel-research/

Hannah Woo was also selected to participate in the first Annual Research Symposium (ARC) organized by the School of Engineering, University of Dayton from April 19-21, 2016. She was one of the 18 selected from a total of 58 applicants. The symposium will be held at the University of Dayton and the Emerson Climate Technologies Helix Innovation Center.

Dr. Andrea Rocha chosen as one of 32 women worldwide to be profiled in the magazine's "Latinas at Tech Giants" edition.

Katie Fitzgerald, Best Poster. Best Poster. ORISE 2015 Summer Student Poster August 6, 2015

Benjamin Adams, EPS Bill Ross Field Camp Scholarships, EPS, University of Tennessee, Knoxville April 24, 2015.

Damani Driver, EPS Bill Ross Field Camp Scholarships, EPS, University of Tennessee, Knoxville April 24, 2015.

Brittny Detienne, EPS Bill Ross Field Camp Scholarships, EPS, University of Tennessee, Knoxville April 24, 2015.

Damani Driver, KGMS Undergraduate Field Camp Awards, EPS, University of Tennessee, Knoxville April 24, 2015.

Damani Driver, GeoClub Gordon Award for outstanding professional promise, EPS, University of Tennessee, Knoxville April 24, 2015.

Hannah Woo CEE Ph.D. Student in Hazen Lab won Second Prize for her poster at the Women in STEM Research Symposium, University of Tennessee, Knoxville April 18, 2015.

Maria Fernandez Campa, Bredesen Center Ph.D. student in the Hazen Lab won Third Prize for her poster at the Women in STEM Research Symposium, University of Tennessee, Knoxville April 18, 2015.

Kathleen McBride, Exhibition of Undergraduate Research and Creative Achievement (EUReCA) Honorable Mention Poster in the College of Arts and Sciences, University of Tennessee, Knoxville. April 14, 2015

Benjamin Adams, Exhibition of Undergraduate Research and Creative Achievement (EUReCA) Honorable Mention Poster in the College of Arts and Sciences, University of Tennessee, Knoxville. April 14, 2015

Katie Fitzgerald, Exhibition of Undergraduate Research and Creative Achievement (EUReCA) Honorable Mention Poster in the College of Arts and Sciences, University of Tennessee, Knoxville. April 14, 2015

Shane Hagen, Exhibition of Undergraduate Research and Creative Achievement (EUReCA) Honorable Mention Poster in the College of Engineering, University of Tennessee, Knoxville. April 14, 2015

Undergraduate Shane Hagen receives Chancellor's Professional Promise Award April 6, 2015. University of Tennessee, Knoxville, TN

Ph.D. Student Hannah Woo receives Chancellor's Professional Promise Award April 6, 2015. University of Tennessee, Knoxville, TN

2nd Annual Southeastern Biogeochemistry Symposium March 28-29, 2015. Georgia Tech, Atlanta, GA. Hannah Woo doctoral student in Civil & Environmental Engineering Wins First Prize for Presentation: What Happens to Lignin in the Ocean? Evidence of Bacterial Lignin Degradation in Marine Microcosms

Posters at the Capitol 2015"UT, Undergraduate Research" February 25, 2015. Nashville, TN. Sheridan Brewer Title: Co-Extraction of DNA and PLFA from Soil Samples using Bligh and Dyer PLFA Extraction and Modified Miller DNA Extraction

Hannah Woo, Travel Award from the Society for Applied Microbiology Presidents Grant Fund to attend the International Symposium in Microbial Ecology. July 9, 2014.

Hannah Woo, Sigma Xi First Place Gold Winner Graduate Research Competition, University of Tennessee, Knoxville. April 28, 2014.

Jiang Liu, David White Microbiology Travel Award, University of Tennessee, Knoxville. April 28, 2014.

Kaela O’Dell, Exhibition of Undergraduate Research and Creative Achievement (EUReCA) best poster in the College of Arts and Sciences, University of Tennessee, Knoxville.

Kaela O’Dell, Exhibition of Undergraduate Research and Creative Achievement (EUReCA) bronze award for best natural sciences poster across the University of Tennessee, Knoxville

Noor Alshibli, Exhibition of Undergraduate Research and Creative Achievement (EUReCA) best poster in the College of Arts and Sciences, University of Tennessee, Knoxville. April 2014.

Noor Alshibli, Exhibition of Undergraduate Research and Creative Achievement (EUReCA) bronze award for best natural sciences poster across the University of Tennessee, Knoxville.

Charley Paradis. Chancellor’s Fellowship, 2013-2016. Earth & Planetary Sciences, University of Tennessee, Knoxville.

Hannah Woo, NSF Graduate Research Fellowship, 2014-2012017, University of Tennessee

Hannah Woo, SCALEIT NSF IGERT fellowship, 2012-2014, University of Tennessee

John Wear Sigma Xi grant-in-aid, 1988; Oak Ridge Associated Universities Fellowship, 1989-1993.

Luis Jiménez Oak Ridge Associated Universities Fellowship, 1988-1991.

José Marcos Soto U. S. Environmental Protection Agency internship. 1987-1988.

Elena J. Biamón UPR Outstanding Undergraduate Investigator in the College of Natural Sciences Award 1981.

Susan Joyner-Rivera NSF pre-doctoral fellowship and MARC (NIH) pre-doctoral fellowship, both beginning June 1984; Peggy Wadsworth Memorial Award, Puerto Rico Natural History Society 1985.

Luis Báez Puerto Rico Industrial Development Bank Fellowship 1984 for graduate study at Louisiana State University, Baton Rouge, La.

BetaBetaBeta excellent chapter award for 1984 from the National BetaBetaBeta.

Theses Supervised (40 completed, 7 in progress; 23 postdoctoral fellows completed 1 in progress; >40 thesis committees completed, 8 in progress)

Baccalaureate Thesis (6 completed)

Sheridan Brewer. May 2016. Isolation and Characterization of Anaerobic Microbial Communities from Hydraulic Fracturing Fluids. Microbiology, University of Tennessee.

Erika Youngquist. May 2016. Genomic Diversity of *Pseudoalteromonas* spp. from Geographically Distant Deep Marine Basins. Microbiology, University of Tennessee.

Natalie Katz. August 2004. High-Throughput Analysis of Stress Response in Metal and Radionuclide Reducing.

Ines Muñiz. December 1987. The Survival of Enterococci in a Tropical Rain Forest Stream. Biology, University of Puerto Rico

Terricita Rodríguez. September 1986. Fecal Indicators in Tropical Shellfish. Biology, University of Puerto Rico.

Susan Joyner. September 1982. The Bacterial Communities of Bromeliads. Biology, University of Puerto Rico.

Master of Science (24 completed)

Erin Kelly. November 2021. Started: 8/2019. Title: Influence of Physical Variability of Highly Weathered Sedimentary Rock on Nitrate in Area 3 of the ENIGMA Field Research Site at Y-12. Earth and Planetary Sciences. University of Tennessee, Knoxville, Currently She started a job as a staff hydrogeologist with Haley & Aldrich in August 2021.

Emma Dixon. July 2020. Started 1/1/2018. Title: High-Resolution Timeseries Analysis of Dynamic Geochemistry: A 27-Well Survey of Contaminated Groundwater Downstream of the former S-3 Ponds, Oak Ridge, Tennessee. Civil & Environmental Engineering, University of Tennessee, Knoxville.

Benjamin Adams. December 2018. Geology. Hydraulic Response to Emulsified Vegetable Oil Biostimulation: In-Situ Test in a Highly Heterogenous Uranium Contaminated Aquifer. Department of Earth and Planetary Sciences. University of Tennessee, Knoxville. Currently Staff Geoscientist III at Environmental Standards, Inc.

Katherine McBride. August 2018. Microbiology. Microbial Memory Response: Observing History-Dependent Adaptation to Repeated Exposures of Emulsified Vegetable Oil in a Contaminated Aquifer. Microbiology Department. University of Tennessee, Knoxville.

Jeff Beegle. May 2017. A Bug's Life: Integration of Anaerobic Digestion and Bioelectrochemical Systems for Enhanced Energy Recovery from Wastewater Solids and Other Waste Substrates. Microbiology Department. University of Tennessee, Knoxville.

Michael R. Greenberg. December 2001. Factors Controlling Concentrations of Metals in the Leachate from Aerobic and Anaerobic Laboratory Landfill Bioreactors. University of California at Berkeley, Environmental Engineering.

Marla Miller. May 1999. TCE contamination. University of California at Berkeley, Environmental Engineering.

Rachael O'Brien. May 1999. PCB contaminated soil chemical and biological treatment. University of California at Berkeley, Environmental Engineering.

Geralyne López de Victoria. February 1989. Chemotactic Behavior of Deep Subsurface Bacteria Toward Carbohydrates, Amino Acids and a Chlorinated Alkene. Biology UPR-Rio Piedras.

José Marcos Soto Muñiz. February 1989. Evaluation of Total Coliform, Fecal Coliform, and Fecal Streptococci as Adequate Indicators in Monitoring Public Water Supply Quality in the Tropics. Biology UPR-Rio Piedras.

Abigail Negrón Alvíra. July 1987. Isolation and Enumeration of *Legionella* spp. in Cooling Tower Waters in the Tropics. Biology UPR-Rio Piedras. Deceased.

Madeline Bermúdez. July 1987. Use of DNA-DNA Hybridization and Determination of the Mol % G+C for the Genetic Analysis of Environmental Isolates of *Escherichia coli* from Tropical Waters. Biology UPR-Rio Piedras.

Norma E. Cruz Cruz. July 1987. In situ Survival and Plasmid Transfer Studies of *Pseudomonas aeruginosa* Strains in Tropical Fresh Waters. Biology UPR-Rio Piedras.

Susan Joyner Rivera. July 1987. Autecology of *Vibrio vulnificus* and *Vibrio parahaemolyticus* in Tropical Waters. Biology UPR-Rio Piedras.

Evelyn E. Elías Montalvo. April 1987. Survival of *Yersinia enterocolitica* in Tropical Freshwater and Evaluation of a Fluorescent Antibody Method for Detection of this Bacterium in Water and Food Sources. Biology UPR-Rio Piedras.

Jorge W. Santo Domingo. April 1987. Comparison of the *In Situ* Survival Rates and Cell Activity of the Indicators of Water Fecal Contamination *Streptococcus faecalis* and *Escherichia coli* in Tropical Marine Waters. Biology UPR-Rio Piedras.

Yazmín A. Rojas. February 1987. Distribution and Survival of Potentially Pathogenic Bacteria in Treated and Untreated Rum Distillery Effluents. Biology UPR-Rio Piedras.

Jesús Santiago Mercado. October 1986. Comparison of Four Membrane Filter Methods and the MPN Method for Detection and Enumeration of Fecal Coliform Bacteria in Tropical Waters. Biology UPR-Rio Piedras.

Carmen Ortiz Roque. April 1986. Distribution of *Legionella* in the Waters of Puerto Rico. Biology UPR-Rio Piedras.

Ileana López de Cardona. December 1984. Survival of Poliovirus in Tropical Waters. Biology UPR-Rio Piedras.

Nerybelle Pérez Rosas. January 1984. Distribution and Survival of *Vibrio* spp. in Tropical Freshwater and Marine Environments. Biology UPR-Rio Piedras.

Martha Carrillo. September 1983. Evaluation of *Bifidobacteria* as a Potential Indicator of Human Fecal Pollution in Tropical Freshwater Aquatic Systems. Biology UPR-Rio Piedras.

Arleen J. López-Torres. September 1982. The Ecology of *Klebsiella pneumoniae* in Aquatic Habitats of Puerto Rico. Biology UPR-Rio Piedras.

Carlos F. Aranda. September 1982. The Ecology of Freshwater Zootychoplankton in the Mameyes River, Puerto Rico. Biology UPR-Rio Piedras.

Doctor of Philosophy (10 completed, 8 in progress)

Diliya Murtazina. In Progress. Started 11/2021. Title Colloids Bredesen Center. University of Tennessee, Knoxville

Isis Fukai. In Progress. Started 8/2019. Title: TBD. Bredesen Center. University of Tennessee, Knoxville.

Ye Li. In Progress. Started: 5/2019. Title: TBD. Civil & Environmental Engineering, University of Tennessee, Knoxville.

Zabreena Griffiths. In Progress. Started 8/2018. Title: TBD. Genome Science and Technology Program. University of Tennessee, Knoxville.

Andrew Putt. In Progress. Started 8/2017. Title: TBD. Earth & Planetary Science, University of Tennessee, Knoxville.

Sa'ad Abd Ar Rafie. In Progress. Started 8/2017. Title: TBD. Civil & Environmental Engineering, University of Tennessee, Knoxville. Chancellor's Fellowship.

Katie Fitzgerald. In Progress. Start 8/2016. Title: TBD. Bredesen Center, University of Tennessee, Knoxville.

Ann-Marie Harik. In Progress. Start 6/2014. Title: TBD. Civil & Environmental Engineering, University of Tennessee, Knoxville.

Izaak Miller. December 2019. Title: Potential adaptation of microbial communities in oxygen minimum zones for the rapid degradation of recalcitrant hydrocarbons. Bredesen Center, University of Tennessee, Knoxville. Currently: Post Doc at ORNL

Charley Paradis. December 2017. Title: Memory Response Push-Pull Hydrology. Earth & Planetary Science, University of Tennessee, Knoxville. Chancellor's Fellowship. Currently: Assistant Professor, University of Wisconsin at Milwaukee.

Maria Campa Ayala. August 2018. Title: Environmental impacts of biocides used in hydraulic fracturing. Bredesen Center, University of Tennessee, Knoxville. Currently: Post-Doc UTK.

Hannah Woo. May 2017. Title: The microbial ecology of bacterial lignocellulosic degradation in the ocean. Department of Civil & Environmental Engineering, University of Tennessee, Knoxville. NSF GRFP. Currently: Fisher Scientific

Jiang Liu. December 2016. Title: Microbial Respiration and Community Response to Crude Oil in Deep Eastern Mediterranean and the Great Australian Bight. Microbiology Department, University of Tennessee, Knoxville. Currently: seeking Post Doc.

Chunyi Chen. November 2015. Title: Microbial Community Changes from Harmful Algae Flocculation. Department of Civil & Environmental Engineering, University of Tennessee, Knoxville. Currently: seeking Post Doc.

John E. Wear. December 1992. Environmental Diagnostic Analysis of Ground Water Bacteria and Their Involvement in Utilization of Aromatic Compounds. Wake Forest University. Currently: Professor Catawba College.

Luis E. Jiménez. September 1989. Molecular Analysis of Deep Terrestrial Subsurface Bacteria. UPR.

William E. Arias. December 1987. Ability of an Environmental *Escherichia coli* Isolate to Survive and Multiply in Algal Exudates of Tropical Microbial Epilithic Communities. UPR. Currently: Professor InterAmerican University.

Francisco A. Fuentes. July 1987. Petroleum Biodegradation in Tropical Near-Shore Coastal Waters: Effects of Environmental Factors on Oil Degraders Growth and Metabolic Activity. UPR. Currently: Professor UPR Humacao.

Post-Doctoral Fellows (23 completed, 1 in progress)

Kurt Ash. Started June 2020. Title: Wastewater-Based Epidemiology of SARS CoV2. CEE, University of Tennessee.

Maria Fernanda Campa Ayala. 2018-2020. Title: Environmental impacts of biocides used in hydraulic fracturing. Methane Center, University of Tennessee, Knoxville. Currently: National Nanotechnology Coordination Office (www.nano.gov) as a Staff Scientist

Andrea M. Rocha. 2012-2016. Oak Ridge Associated Universities through ENIGMA. Currently Scientist with GeoSyntec.
Sindhu Jagadamma. 2014-2015. Department of Civil & Environmental Engineering, University of Tennessee, Knoxville through Governor's Chair Program. Currently Assistant Professor, University of Tennessee.
Stephen M. Techtmann. 2012-2015. Department of Civil & Environmental Engineering, University of Tennessee, Knoxville through Governor's Chair Program. Currently Associate Professor, Michigan Technological University.
Nagissa Mahmoudi. 2013-2014. Department of Civil & Environmental Engineering, University of Tennessee, Knoxville through Governor's Chair Program. Currently Assistant Professor McGill University.
James H. Campbell. 2012-2013. Oak Ridge Associated Universities through Governor's Chair Program. Currently Associate Professor Northwest Missouri State University.
Nicolas Bailor. 2011-2011. JBEI with Janet Jansson, Currently Research Scientist Lawrence Berkeley National Laboratory.
Kristin DeAngelis. 2007-2011. Seaborg Fellow, Currently Associate Professor UMass Amherst
Cindy H. Wu. 2007-2011. Genomics: GTL, ERSP, Currently Research Scientist Supervisor at California Department of Public Health
Romy Chakraborty. 2005-2008. Genomics: GTL, NASA: Astrobiology, Currently Staff Scientist and Department Head, Lawrence Berkeley National Laboratory.
Tracy Letain. 2000-2003. Natural and Accelerated Bioremediation Research Program. Currently Microbiologist at AquaBella Organic Solutions
Sadhana Chauhan. 1999-2001. University of California, Berkeley, Currently Research Scientist at University of Texas Medical Branch.
Albert Tien. 1996-1998. Oak Ridge Institute for Science Education, Currently Sustainable Development Consultant Ohio
Geralyne López de Victoria. 1996-1998. Oak Ridge Institute for Science Education. Currently Science Dept. Chair at Midlands Technical College, Columbia, South Carolina
Joann Radway. 1996-1997. Oak Ridge Institute for Science Education. Deceased 2017.
Jorge Santo Domingo. 1995-1998. Oak Ridge Institute for Science Education, Currently Microbiologist at US EPA
Jill D. Young. 1995-1996. Oak Ridge Institute for Science Education. Currently Unknown.
Robert Gorden. 1994. Oak Ridge Institute for Science Education, Retired Illinois Natural History Survey.
Robin Brigmon. 1994-1995. Oak Ridge Institute for Science Education, Currently Fellow Scientist Savannah River National Laboratory.
John E. Wear. 1993. Oak Ridge Institute for Science Education, Currently Executive Director at Center for the Environment and Associate Professor at Catawba College
Michael Enzien. 1990-1993. Oak Ridge Associated Universities, Currently Director Of Technology at BioSuites LL.
Joel Dougherty. 1989-1992. Oak Ridge Associated Universities. Currently living in Irvin, TX.
Gary A. Toranzos. 1986-1988. National Institutes of Health Grant RR-02657-01, Currently Professor University of Puerto Rico, Rio Piedras

Thesis Committees 3 in progress, >50 completed)
Victoria Rexhausen, Started 9/2021. Ph.D. Civil & Environmental Engineering, University of Tennessee, Knoxville, TN. Advisor: Jon Hathaway.
Kaela O'Dell, Started 5/2019. Ph.D. Bredesen Center. Advisor: Adam Guss.
Yabing Li. Started 8/2017. Ph.D. Student. Civil & Environmental Engineering, University of Tennessee, Knoxville, TN. Advisor: Qiang He.
Scott Satinover. Started 6/2017. Ph.D. Student. Bredesen Center. Advisor: Abhijeet Borole. Finished 5/2020
Kate Manz. Started 7/2016. Ph.D. Student. Bredesen Center. Advisor: Kim Carter. Finished 5/2018.
David Reeves. Started 7/2016. Ph.D. Student. Bredesen Center. Advisor: Bob Hettich.
Ashley Ramsey. Started 8/2015. M.S. Student. Advisor: Annette Engel. Finished 12/2017
Deni Ribicic. Started 1/2015. Ph.D. Student. TBD. Engineering, Norwegian University of Science and Technology (NTNU) and SINTEF, Department of Marine Environmental Technology. Advisor: Odd Gunnar Brakstad
Joy Buongiorno. Started 12/2014. Ph.D. Student. TBD. Microbiology, University of Tennessee. Advisor: Karen Lloyd.
Alex Lewis. Started 5/2016. Ph.D. Student. Bredesen Center. Advisor: Abhijeet Borole. Finished 6/20/17
Steve Higgins. Started 12/16/12. Ph.D. Student. Department of Microbiology, University of Tennessee, Knoxville. Advisor: Frank Löeffler. Finished 11/2017
Terri Brown. Started 7/11/12. Ph.D. Student. Department of Earth & Planetary Science, University of Tennessee, Knoxville. Advisor: Annette Engel. Finished: 11/15/16
Burcu Simsir. Started 2/2014. Ph.D. Student. Ecology of Organohalide-Respiring *Dehalococcoides mccartyi* (*Dhc)*:
Community Interactions and Environmental Controls over *Dhc* Strain Diversity. Civil & Environmental Engineering, University of Tennessee. Advisor: Frank Löffler. Finished: 8/16/16.
Yi Yang. Started 2/2014. Ph.D. Student. Chlorinated solvents. Civil & Environmental Engineering, University of Tennessee. Advisor: Frank Löffler. Finished 8/16/16.

Si Chen. Started 2/4/13. Ph.D. Student. Department of Civil and Environmental Engineering, University of Tennessee. Advisor: Qiang He. Finished 8/14/2014.
Kathleen Brannen. Started 8/29/12. Ph.D. Ph.D. Student. Department of Earth & Planetary Science, University of Tennessee, Knoxville. Advisor: Annette Engel. Finished 12/2015
Caroline Dietz. Started 7/20/12. M.S. Student. Department of Earth & Planetary Science, University of Tennessee, Knoxville. Advisor: Annette Engel.
Sagar Utturkar. Started 8/1/12. Ph.D. Student. Graduate School of Genome Science and Technology, University of Tennessee, Knoxville. Advisor: Steve Brown. Finished 12/2015.
Dara Goodheart. Started 9/1/09. Finished 12/2013 Ph.D. Student. Department of Plant & Microbial Biology**,** University of California at Berkeley. Advisor: Mary Firestone.
Rebecca Daly. 2012. Ph.D. Department of Plant & Microbial Biology, University of California at Berkeley. Advisor: Mary Firestone. Currently: Microbiology, Ohio State University.
Rajeshwari S. Chikramane, Started 8/1/07. Ph.D. Student, George Mason University. Advisor: Carol Litchfield (deceased)?
Jana Sitte. 2009. Ph.D. Friedrich Schiller University Jena, Institute of Ecology.
Prateek Pannu. 2001. MS. Civil and Environmental Engineering, University of California at Berkeley
Miguel Sastre. Ph.D. University of Puerto Rico.
Noemi Santiago de Wiel. Ph.D. University of Puerto Rico.

Visiting Professors (9 total)
Dr. Jianyu Zhu. 2012-2013. Central South China University, Changsha, China
Dr. Lisa Alvarez-Cohen. University of California at Berkeley.
Dr. Steve Lindow. University of California at Berkeley.
Dr. John Coates. University of California at Berkeley.
Dr. Mary Firestone. University of California at Berkeley.
Dr. William J. Oswald. 2007. University of California at Berkeley.
Stacy Miranda. 2002. Merced Community College.
Dr. Carlos Rios Velazquez. June 2003-August 2004. Microbial ecology of aerobic landfills. University of Puerto Rico at Mayaguez, Department of Biology. FAST Program (DOE/NSF). Currently: http://www.uprm.edu/biology/profs/rios/index.htm
Dr. Arturo Massol-Deyá. June 2006-2008. Molecular microbial ecology of UXO contaminated marine environments. University of Puerto Rico at Mayaguez, Department of Biology. FAST Program (DOE/NSF). Currently: http://vieques.uprm.edu/

High School Teachers (2)
Emily J. Dulde. July 2005-August 2006. Summer High School Teacher developed teaching modules for bioremediation, biodegradation, and land fill issues. Currently: Milwaukee, WI High School at duldee@nbps.k12.wi.us
Stacy Miranda. 2002. Merced Community College.
Virginia Osborne-Gutierrez. 2000.

Undergraduate interns (1 current, >100 total)
Plutney Alcime. REU Summer 2022, Benedict College
Sydney DeBlander. Summer 2021, Michigan State University
Isabella Alamilla. Fall 2019-Summer 2021, University of Tennessee
Priscilla Pineda, Fall 2019-Summer 2021, University of Tennessee
Heather Scott, Fall 2019, University of Tennessee
Abdullah Salim, Fall 2018-Spring 2020, University of Tennessee
Tien Tran, Fall 2018-Spring 2019, University of Tennessee
Rachel Penumadu, Summer 2018-Spring 2019, University of Tennessee
Blake Downing, REU Summer 2018, University of Minnesota
Thomas Geissberger, Fall 2017-2019, University of Tennessee
Eriko Gordon, Spring 2017- 2020, University of Tennessee
Cody Hudson, Fall 2017, University of Tennessee
Emma Dixon, Summer 2017-Fall 2017, University of Tennessee
Ahmad Alishibi, Summer 2015-2016, University of Tennessee.
Kathryn McBride, Spring 2015-Summer 2016, University of Tennessee.
Erika Youngquist. Fall 2014-Summer 2016. University of Tennessee
Chasity Hobby, Spring 2016, University of Tennessee.
Megan Patterson, Summer 2015-Fall 2015, University of Tennessee.

Benjamin Adams. 2014-2015. University of Tennessee. Currently MS Student, University of Tennessee.
Katie Fitzgerald. 2014-2015. University of Tennessee. Currently Ph. D. Student, University of Tennessee.
Amanda Garcia de Matos Amaral, Spring 2015, Summer 2016, University of Tennessee Foreign Exchange Student BSMP (Brazil Scientific Mobility Program), *Federal University of Bahia, Salvador – BA, Brazil*
Anthony Rossi, Summer 2015, REU Student. Birmingham-Southern College.
Kendall Whitt. Fall 2014-2015. University of Tennessee
Brittny L. Detienne. 2014-2015. University of Tennessee.
Shane Hagan. 2014-2015. University of Tennessee
Damani Driver. 2013-2015. University of Tennessee.
Sheridan Brewer. 2013-2017. University of Tennessee. Currently MS Student, University of Georgia.
Djibril Niang. Summer 2014. REU Student. Georgia State University
Austin Harris. 2013-2014. University of Tennessee.
Kaela O'Dell. 2013-2014. University of Tennessee.
Savannah Stelling. 2013-2014. University of Tennessee.
Noor Alishibi. 2012-2014. University of Tennessee.
Tyler Wadzinski. 2014. University of Tennessee.
Kristen Corrier. 2013-2014. University of Tennessee.
Jace Natzke. 2013. University of Tennessee.
Amer Nazeeh Aqqad. 2013. University of Tennessee.
Shital Vinod Chauhan. Spring 2013. University of Tennessee.
Sophie Dilek. Summer 2013. Smith College.
Pauline Hanset. Summer 2013. Stanford University
Ying Joanna Chen. 2009. University of California at Berkeley.
Natalie Tam. 2009. University of California at Berkeley.
Priyanka Singh. 2009. University of California at Berkeley. Currently: Ph.D. Student University of California Riverside.
Swati Choudhary. 2008. University of California at Berkeley. Currently: Phlebotomist American Red Cross, Arkansas
Bonita R. Lam. 2008. University of California at Berkeley. Ph.D. program University of Southern California.
My Ha Vu Nguyen. 2008. University of California at Berkeley.
Jenny Liu. 2008. University of California at Berkeley.
Shruti Shrivastav. 2007. University of California at Berkeley.
Nicholas M. Kwong. 2007. University of California at Berkeley.
Darcie H. Long. 2007. University of California at Berkeley. Currently Ph.D. student John Hopkins.
Katsuura, Yooshihiro (Yoshi). 2006. University of California at Berkeley.
Tiffany G. Wong. 2006. University of California at Berkeley.
Chin Man (Ambrose) Leung. 2006. University of California at Berkeley. Currently technician LBNL.
Yuk Man (Kevin) Lei. 2006. University of California at Berkeley.
Megan Shelby. 2006. University of California at Berkeley. Currently Ph.D. student at University of Chicago.
Lydia Suet Fan Chan. 2006. University of California at Berkeley.
Amala Shetty. 2006. University of California at Berkeley.
Catherine H. Chiang. 2006. University of California at Berkeley.
Joyce Chou. 2006. University of California at Berkeley.
Natalia Ramos. 2006. University of Puerto Rico at Mayaguez. Currently PhD student UC San Francisco.
Ernie X. Pérez Almodóvar. 2006. University of Puerto Rico at Mayaguez. Currently Scientist at AMGEN.
Kathryn Jacobsen-Majer. 2006. High School. Currently assistant LA Prosecutor.
Eun Hye Kim. 2005. University of California at Berkeley.
Winnie Kam. 2005. University of California at Berkeley.
Siu Pan (Ben) Lam. 2005. University of California at Berkeley. Currently Scientist at STEMCELL Technologies.
Karen M. Webster. 2005. University of California at Berkeley, Chemical Engineering. Currently Technician at NREL.
Josue Malave-Orengo. 2003. University of Puerto Rico at Mayaguez. Currently Research Associate at DuPont Pioneer.
Ramon Martinez-Santiago. 2003. University of Puerto Rico at Mayaguez.
Natalie Katz. 2002-2004. Seattle Central Community College. Currently MD/PhD Candidate at University of Kansas Medical Center.
Alicia White. 2002. James Madison University.
Elizabeth Padilla. 2002. University of Puerto Rico at Mayaguez. Currently finishing Ph.D. at University of Tennessee.
Felix Santiago. 2002. University of Puerto Rico at Mayaguez.
Luis Espinoza. 2000. University of California at Berkeley.
Benjamin Runkles. 1999. Princeton University.
Clarence Lockett. 1995. University of South Carolina at Aiken.

Rachel E. Dunifon. 1990. Davidson College. Ruth Patrick Science Education Summer Science Research Program. Currently Professor, College of Human Ecology, Cornell University.
D. King. 1990. Clemson University.
Jamie C. Sharp. 1989. Aiken High School.
Heyda Ortiz. 1987. University of Puerto Rico
Sylvia Davila. 1987. University of Puerto Rico.
Carmen Hernández. 1987. University of Puerto Rico.
Wanda Morales Hernández. 1987. University of Puerto Rico.
Miguel Pérez Rodríguez. 1987. University of Puerto Rico.
Michol Martínez Rodríguez. 1987. University of Puerto Rico.
Carmen Hernández Rivera. 1986. University of Puerto Rico.
Laura Rivera Crespo. 1985. University of Puerto Rico.
Petra Rojas. 1985. University of Puerto Rico.
Tomas Lugo Chinchilla. 1985. University of Puerto Rico.
Ebless Baez Alers. 1985. University of Puerto Rico. Currently CEO and Founder of NOVOBIOTEK
Evelyn Cruz Pastrana. 1985. University of Puerto Rico. Currently Environmental Engineer & Biologist GlaxoSmithKline Germany.
Hector Moreno Acosta. 1984. University of Puerto Rico.
Orlando Rivera Opia. 1984. University of Puerto Rico.
Luis Baez Morales. 1983. University of Puerto Rico.
Endy Rosado Rosario. 1983. University of Puerto Rico.
Monserrate Cerezo Caballero. 1983. University of Puerto Rico. Currently Project Manager/ Chief Microbiologist at HEOMD NASA Headquarters.
Madelaine Bermudez Maldonado. 1983. University of Puerto Rico. Currently Pharmaceuticals Professional Raleigh-Durham, North Carolina.
Fernando Santos Ramirez. 1983. University of Puerto Rico.
Terrecita Rodriguez Alonso. 1983. University of Puerto Rico.
Laura Valdes-Mora. 1981-82. University of Puerto Rico. Currently Quality Control Microbiology Manager at Summit Biosciences, Inc.
Susan Joyner de Rivera. 1982. University of Puerto Rico.
Maria Guera. 1982. University of Puerto Rico.
Marie Collazo. 1982. University of Puerto Rico.
Lisa Almodovar Vona. 1982. University of Puerto Rico.
Jorge Santo Domingo. 1981. University of Puerto Rico. Currently Senior Scientist US EPA Cincinnati.
Eddie Estrada Velazquez. 1981. University of Puerto Rico. Currently MD in Arizona.
Eleana Biamón. 1979-81. University of Puerto Rico. Currently Manager of Organic Coffee Farm in Puerto Rico.
Fernando Rivera Ramos. 1980-81. University of Puerto Rico.
Nerybelle Pérez Rosas. 1980-81. University of Puerto Rico. Currently Profesor at Universidad de Puerto Rico.
Clara Fuentes Bustamante. 1981. University of Puerto Rico.
Evelyn Elias. 1981. University of Puerto Rico. Currently Director, Learning and Performance at Amgen.
Mariangelo Marrero Aquino. 1980. University of Puerto Rico.
James Morales Morales. 1980. University of Puerto Rico.

Equipment Contributions at UTK/ORNL since 2012

Dr. Hazen believes strongly in team science therefore he has made and extra effort to support purchases of major equipment at UTK and ORNL and to share all his major equipment (See http://hazenlab.utk.edu/equipment.php). This includes: high-speed centrifuges, gassing stations, anaerobic chambers, -80 Freezers, fusion algal bioreactors, autoclaves, 2 Illumina MiSeq, 2 Micro-Oxymax Microrespirometers, Zeiss Axio Scope Epifluorescent Microscope with camera, 2 Agilent GC 5977A (MSD, ECD, FID, autosampler), Biolog Microstation Fungi, McLane pump for in situ filtration, Omnilog Phenotypic Microarray, QuantStudio 12K Flex Realtime Q-PCR, Maxwell 16 extractor, QuatStudio 7 Pro RT qPCR, BSC double wide, and field sampling equipment for sediment cores, groundwater, and deep marine waters. Many students and faculty in CEE, EPS, and Micro have used this equipment to support their research, in addition to ORNL staff and students, and several other Departments in the College of Arts and Sciences, Tickle College of Engineering, and UT Agriculture. Dr. Hazen has also supported funding for other faculty purchases for e.g. FT-IR spectromicroscope, ICP-MS, large autoclave, IVIS Lumina K Series III real-time *in vivo-in vitro* fluorescent and bioluminescent fast imaging system, Bio-Rad CFX Connect Quantitative PCR system, Life Technologies Qubit Fluorometer, Sorvall Legend XTR refrigerated centrifuge. His purchase of 2 Illumina MiSeq, 1 at UTK and one at ORNL, has enabled his group to train faculty, staff, post-docs, graduate students and

undergraduates to learn hands on sequencing. Many of his graduate and undergraduate students have done genome announcements on many different bacteria while he has been at UTK/ORNL. This is currently an extremely valuable skill that is not allowed in UTK Core Facilities. QuantStudio 7 Pro realtime qPCR.

Grants and Contracts (90 + funded, $262,460K)

UTK Wastewater Based Epidemiology $300K+ Weekly monitoring of all the buildings with student residences (48) for SARS CoV-2.

National Science Foundation. PI. Engineering Research Center Planning Grant. 1 year. 2020:$100K.

National Nuclear Security Administration, United States Department of Energy. Consortium for Verification Technology, Co-PI, led by University of Michigan 5 years at $150K/yr 2019: $136K, 2020: $150K, 2021: $150K, 2022: $150K.

National Science Foundation, Co-PI with Michigan Technological University and Juniata College with Juniata College as Lead. Collaborative Research: Impacts of biocides associated with hydraulic fracturing on aquatic microbial communities. 3 years at $80K/yr 2018: UTK $80K, 2019: UTK $80K, 2020: $80K.

Institute for a Secure and Sustainable Environment, University of Tennessee, Director
State and various: 2016: $1,264K, 2017: $1,350K, 2018: $1,284K, 2019: $150K.

Methane Center, ISSE Director
State via ISSE: 2018: $200K, 2019: $100K, 2020:$100K, 2021: $100K, 2022: $100K

SINTEF through the Norwegian Science Foundation
Contract: Oil Spill Dispersant Strategies and Biodegradation Efficiency. 2014-7: UTK $120K

American Petroleum Institute
Contract: Determining the Needs for High Pressure Laboratory Biodegradation Research. 2014: $53K

BP Exploration & Production Inc.
Contract: Ecological Signatures of Oil Biodegradation in the Global Ocean. 2012-17: UTK - $1,350K, MIT - $700K

Governor's Chair University of Tennessee/Oak Ridge National Laboratory: 2011-present: >$2,000K for 3-year start. 2012: $500K, 2013: $500K, 2014: $500K, 2015: $500K, 2016: $500K, 2017: $500K, 2018: $550K, 2019: $550K, 2020: $550K, 2021: $550K, 2022: $550K.

United States Department of Energy
ORNL LDRD Co-PI. Predicting Climate Feedbacks from Microbial Function in Tropical Ecosystems. 2015: $300K; 2016: $400K; 2017: $100K
Contract EY-76-S-09-0900. The impact of thermal loading and other water quality parameters on the epizootiology of *Aeromonas hydrophila* infections in centrarchids. 1975-6: $47.7K; 1976-7: $65K; 1977-8: $52K; 1978-9: $52K; 1979-80: $35K.
Contract EY-76-S-09-0965. *Aeromonas hydrophila* as an agent of infection in alligators. 1976-7: $54.5K; 1978: $3.5K.
Contract DOE HAZWRAP. Biodegradation of trichloroethylene. 1987-8: $250K; 1988-9: $250K; 1989-90: $250K; 1990-91: $250K; 1991-92: $1,200K; 1992-93: $500K.
Contract DOE OTD. Integrated demonstration of in situ remediation of trichloroethylene in soil and groundwater at SRS. 1989-90: $750K; 1990-91: $1,000K; 1991-92: $2,500K; 1992-3: $2,100K; 1993-4: $450K
CRADA DOE and Bearehaven Reclamation Inc. 1994-1996: $1,400K.
PAH Demonstration in Poland 1995-8: $1,200K
Reactor Area Bioventing Fuels 1995-7: $227.3K
Aquifer Characterization 1996-7: $361.6K
Biofilter Design for Styrene 1996: $13.8K
DWPF LUST characterization 1996: $49K.
Sanitary Landfill Bioremediation 1995-8: $1,500K.
D-area Bioventing Demonstration 1996-7: $200K.
Intrinsic Bioremediation 1995-7: $500K.
Southern Sector Phytoremediation 1996-7: $200K.
PCS Facility 1993-8: $1,500K.
R basin Biopile 1996-7: $200K.
Indoor Air Quality 1997: $50K.
EM50 Strategic Lab Council 1998: $50K, 1999: $50K, 2000: $50K, 2001: $50K, 2002: $50K.
LBNL PCB Demonstration 1998: $15K, 1999: $40K, 2000: $40K.
LBNL Methane Biostimulation Demonstration 1998: $15K, 1999: $150K, 2000: $100K.

SBR (ERSP, NABIR) Program Support 1998: $50K, 1999: $300K, 2000: $330K, 2001: $300K, 2002: $300K, 2003: $300K, 2004: $350K, 2005: $350K, 2006: $500K, 2007: $350K, 2008: $350K, 2009: $350K, 2010: $350K, 2011: $350K, 2012: $350K, 2013: $50K

NABIR Research Project Co-PI with J. Wan, T. Tokunaga, and M. Firestone. Mesoscale Biotransformation Dynamics as the Basis for Predicting Core Scale Reactive Transport of Chromium and Uranium 1999: $260K, 2000: $280K, 2001: $300K, 2002: $300K, 2003: $300K, 2004: $300K, 2005: $400K, 2006: $400K, 2007: $400K.

LBNL LDRD Aerobic Landfill Bioreactor. 2000: $140K, 2001: $250K, 2002: $200K.

NABIR Research Project Co-PI with Sue Clark, and Heino Nitsche. The role of biogeochemical dynamics in the alteration of U solid phases under oxic conditions 2001: $300K, 2002: $300K, 2003: $300K.

SCFA Lead Lab Support 2000: $100K, 2001: $100K, 2002: $156K.

Yucca Mountain Project. PI with B. Faybishenko. The role of microbes in hydrology of oligotrophic fractured rock environments. 2001-2: $500K.

NABIR-EM Research project PI, co-PIs: J. Wan, T. Tokunaga, M. Firestone, B. Faybishenko, S. Hubbard, and P. Long. Field study of lactate injection for bioreduction of chromium at Hanford. 2002: $75K, 2003: $375K, 2004: $300K, 2005: $500K, 2006: $500K, 2007: $500K, 2008: $500K.

Subsurface Biogeochemical Research LBNL Scientific Focus Area. Lead: Susan Hubbard. Collaborator with others Hazen part. 2009: $400K, 2010: $400K, 2011: $400K, 2012: $400K.

Genomics: GTL Co-PI with Adam Arkin. Virtual Institute for Microbial Stress and Survival – Rapid deduction of stress response pathways in metal and radionuclide reducing bacteria ($36.6M committed for 2002-7) 2002: $2,500K, 2003: $7,500K, 2004: $8,500K, 2005: $8,500K, 2006: $8,500K, 2007: $8,500K, 2008: $8,500K

Genomic Sciences Program ENIGMA SFA. Co-PI with Adam Arkin, Paul Adams, Matthew Fields, Adam Deutshbauer, Judy Wall, Nitin Baliga, Eric Alm, and Trent Northen. 2009: $1,500K, 2010: $1,500K, 2011: $1,500K, 2012: $1,500K, 2013: $1,250K, 2014: $1,350K, 2015: $1,600K, 2016: $1,600K, 2017: $1,600K, 2018: $1,600K, 2019: $1,390K, 2020: $1,390K, 2021: $2,000K, 2022: $2,000K.

LBNL LDRD Real-time PCR for chlorinated-solvent degraders. Co-PI with Lisa Alvarez-Cohen. 2003: $100K, 2004: $85K, 2005: $90K.

Genomics: GTL Co-PI with Mark Biggin. Protein Complex Analysis Project. ($25M committed for 2006-2011) 2006: $3,500K, 2007: $4,000K, 2008: $4,000K

LBNL LDRD Microbial Fuel Cells. Co-PI with John Coates. 2006: $350K, 2007: $300K, 2008: $100K

BER Distinguished Scientist Award (2006-2011, $1.25M committed): 2006: $250K, 2007: $250K, 2007: $250K, 2008: $250K

ERSP Research Project: In Situ Sequestration of 90Sr and Uranium in the Vadose Zone through Microbial Precipitation of Phosphate Materials. Co-PI with M. Conrad, N. Spycher, P. Nico, Y. Fujita (INL). 2007: $270K, 2008: $300K, 2009: $300K, 2010: $300K

Joint Bioenergy Institute (JBEI), Director of Microbial Communities. 2008: $700K, 2009: $800K, 2010: $800K, 2011: $800K, 2012: $800K, 2013: $100K

Genomic Sciences Program Genetically Engineered Bacteria Risk. Co-PI with Adam Arkin, and Nathan Hilson. 2010-2012: $1,000K.

Energy Biosciences Institute, Systems Biology Program. Co-PI with A. Arkin and Inna Dubchak. 2008: $1,600K, 2009: $1,600K, 2010: $1,600K, 2011: $1,600K, 2012: $500K

Microbial Enhanced Hydrocarbon Recovery. Lead with Co-PIs John Coates and Bruce Fouke. 2009: $2,000K, 2010: $2,000K, 2011: $2,000K, 2012: $2,000K, 2013: $200K

Deepwater Horizon Oil Spill Systems Biology. PI. 2010: $1,000K, 2011: $1,100K

United States Department of Defense.

Strategic Environmental Research and Development Program. Methanotrophic Bioreactors for Treatment of Contaminated Ground Water. 1994-97: $2,000K.

Bioremediation Education Science and Technology (BEST) PAH Bioremediation 1999: $50K, 2000: $1,800K.

Army Corps of Engineers. Treatability for Bioremediation of Chlorinated Solvents. 1996: $60K.

United States Environmental Protection Agency.

Clean Beaches Program via Marin County, CA. Co-PI with G. Andersen and J. Hulls. 2008: $200K, 2009: $200K, 2010: $200K.

National Aeronautical and Space Administration.

Astrobiology CAN-23. ITPAI (Indiana-Tennessee-Princeton Astrobiology Institute) Detection of biosustainable energy and nutrient cycling in the deep subsurface of Earth and Mars. 2003: $150K, 2004: $150K, 2005: $200K, 2006: $250K, 2007: $150K, 2008: $60K. (Led by Indiana University)

North Carolina Board of Science and Technology

Grant 821. A study of red-sore disease and *Aeromonas hydrophila* in selected reservoirs and estuaries in North Carolina. 1977: $25K.

United States Department of Interior.

Grant WRRI project B-112-NC. A study of red-sore disease and *Aeromonas hydrophila* in selected reservoirs and estuaries in North Carolina. 1977-8: $37K; 1978-9: $41.6K.

Grant WRRI project RUM-UPR. Effect of treated rum distillery effluents on the distribution and survival of potential bacterial pathogens. 1984: $25.5K.

Grant WRRI project RUM-UPR. A comparison of methods for the enumeration of fecal coliforms in natural waters of Puerto Rico. 1987: $23K.

United States Department of Agriculture (Forest Service). Service Contract to determine indicator bacteria densities in a rain forest watershed. 1981: $6.75K

National Institute of Health MBS.

Grant RR-8102. The effect of tropical water quality on pathogenic bacteria. 1981-2: $43.3K; 1982-3: $35.9K; 1983-4: $41.7K; 1984-5: $69K; 1985-6: $65.9K; 1986-7: $42K.

Grant RR-02657-01. Thematic Grant. Parasitic Disease Research Program of Puerto Rico: Multiple Concurrent Infections of *Schistosoma* and bacteria. 1985-6: $98K; 1986-7: $90K; 1987-8: $90K.

Minority Access to Research Careers - Honors Undergraduates. 1981-2: $3K; 1982-3: $3K; 1983-4: $3K; 1984-5: $3K; 1986-7: $4K.

National Science Foundation - Resource Center for Science and Engineering.

1981-2: $1,500; 1982-3: $1.5K; 1983-4: $1.5K; 1984-5: $5K; 1985-6: $1K; 1986-7: $1.5K.

National Oceanographic and Atmospheric Administration (Sea Grant)

Grant NA81880-B-0031 (EN-P-45). Assessment and control of enteric virus contamination in shellfish. 1982: $30K; 1983: $16K.

Project Number R/LR-08-87-THA1. Assessment and control of pathogen contamination in mangrove oysters, *Crassostrea rhizophorae*. 1986: $4K; 1987: $42.1K.

Natural Resource Damage Assessment funded with BP set aside for Deep Water Horizon, PI 2012-2013: $2,200K

Oficina de Coordinación de Estudios Graduados y Investigaciones, University of Puerto Rico.

The ecology of *Aeromonas hydrophila* in the Río Mameyes watershed. 1979: $7.6K; 1980: $5.95K; 1981: $3.4K.

The ecology of fecal coliforms in the Río Mameyes watershed. 1982: $3.5K; 1983: $6.11K; 1984: $4.5K; 1985: $4.5K.

Protagonist. Prophet Computer Workstation, University of Puerto Rico, Río Piedras. NIH-Department of Human Resources. 1984-85: 6 months gratis use.

Contracts for technical consulting and research with Private Industry (some topics confidential)

BP America: 2012-2014: $1,320K

Hyatt Hotels 1986: $25K.

Applied Scientific Computers 1981-1987: $30K.

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Earthtech 1996: $15K, 1997: $20K, 1998: $20K, 1999: $20K.

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SERA/CTC 1995: $20K, 1996: $30K. 1997: $50K. 1998: $20K.

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Professional Societies and Journals (15)

American Academy of Microbiology
American Association for the Advancement of Science
American Society for Engineering Education
American Society for Microbiology
American Chemical Society
Biotechnology
Environmental Science and Technology
Environmental Microbiology
Microbial Biotechnology

ISME
Microbial Ecology
Scientific American
Sigma Xi (Full member)
Society for Industrial Microbiology
International Association of Hydrogeologists

Patents and Invention Disclosures (5 patents issued, 9 patents filed, 13 disclosures)

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Kastner, J., B. B. Looney, **T. C. Hazen**, K. H. Lombard. Gas phase nutrient addition to enhance biofiltration of gaseous pollutants. SRS-96-0092. WSRC recommended filing for patent 10/3/96.

Looney, B. B., **T. C. Hazen**, S. Pfiffner, T. J. Phelps, J. Borthen, and K. Lombard. Method for Phosphate-Accelerated Bioremediation U. S. Patent #5,480,549. Issued January 2, 1996.

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Hazen, T. C., and C. B. Fliermans. Bioremediation of Contaminated Groundwater (SRS-92-047). Disclosure 11/19/91. Submitted U. S. Patent Office 2/92. Allowed by US Patent Office 6/28/94, Issued 01/24/95, US Patent #5384048.

McCabe, D. and **T. C. Hazen**. LAL as a Bacteria Detector to Predict the Bacterial Fouling Capacity of Influent Water on Filters (SRS-92-040). Disclosure 11/12/91. WSRC Patent Committee decided not to file.

Hazen, T. C., R. E. Long, and C. B. Fliermans. Sediment Microbial Reinoculation Chamber (SRS 90-062). Disclosure 2/7/90. WSRC Patent Committee did not recommend patent application because enforcement would be difficult 3/22/90.

Hazen, T. C. Chemotactic Selection of Pollutant Degrading Soil Bacteria (SRS 89-027). U.S. Patent #5324661, issue date 6/28/94.

Hazen, T. C., and G. López de Victoria. Method and System for Enhancing Microbial Motility. U.S. Patent #5326703, issue date 7/05/94.

Hazen, T. C., and L. Jiménez. Concentration of DNA from water using positively charged filters (S-66389). Disclosure 8/1/88. Patent applied for 6/2/89. Application abandoned by DOE 1/93.

Genomes NCBI

Db	Count	Description
Assembly	27	genome assembly information
Clone	59	genomic and cDNA clones
dbVar	805	genome structural variation studies
Epigenomics	31	epigenomic studies and display tools
GSS	3,860	genome survey sequences
Nucleotide	66,238	DNA and RNA sequences
Probe	160	sequence-based probes and primers
SNP	5,299	short genetic variations
Proteins	623,325	
Fungi	9	
Bacteria	18,392	
Archaea	52	

Bibliography 405 published, 0 in press, 10 submitted, 11 in preparation, ISI H-index=60 for 14,411 citations, Research Gate H-index=74 for 20,027 citations, Google H-index=80, i10 index=264 for 24,120 citations, Scopus H-index=62, Dimensions H-index=64, Web of Science lite H-index=59. As of **January/February 2022**, 5 papers are **highly cited,** i.e. received enough citations to place them in the top 1% of its academic field based on a highly-cited threshold for the field and publication year. 1 **Hot paper**: A hot paper was published in the past two years and received enough citations in January/February 2022 to place it in the top 0.1% of papers in it's academic field. Note: (*ISI Journal Impact Factor for 2021, citations as of 09/09/2022) 2018 Most highly cited author.*

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400. **Hazen, T. C.**, and G. W. Esch. 1977. Studies on the population biology of two larval trematodes in the amphipod, *Hyalella azteca*. Am. Midl. Nat. 98:213-219. *(0.731, 8).*
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402. Esch, G. W., **T. C. Hazen**, and J. M. Aho. 1977. Parasitism and r and K selection. p. 9-62. In: Regulation of Parasite Populations. G. W. Esch ed. Academic Press, New York. *(NA, 51).*
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404. Esch, G. W., **T. C. Hazen**, R. V. Dimock, Jr., and J. W. Gibbons. 1976. Thermal effluent and the epizootiology of the ciliate *Epistylis* and the bacterium *Aeromonas* in association with centrarchid fish. Trans. Am. Microsc. Soc. 95:687-693. *(1.217, 72).*
405. **Hazen, T. C.,** G. Smith, and R. V. Dimock, Jr. 1976. A method for fixing and staining peritrich ciliates. Trans. Am. Micros. Soc. 95:693-695. *(1.217, 6).*

Presentations and Media (1981, 1381 invited, 1520 abstracts or articles published)

1. Im*, J., A. Putt, K. Walker, J. Marquis, L. Lui, A. Carr, Y. Fan, J. Goff, K. Hunt, J. Michael, F. Poole, Y. Wang, M. Adams, N. S. Baliga, D. Stahl, J. Zhou, M. W. Fields, **T. C. Hazen**, A. P. Arkin, and M. E. Newcomer. Contributed. Incorporation of Microbial Communities into Reactive Transport Modeling of Nitrogen in Subsurface Systems under Rainfall Perturbations. December 12-16, 2022 Chicago, IL. AGU Fall Meeting.
2. **Hazen, T. C.,** Y. Li, K. Ash, D. C. Joyner, D. E. Williams, P. McKay, I. Alamilla, and C. North. Invited Seminar. Monitoring of Wastewater for COVID at the University of Tennessee campus during the pandemic and wastewater epidemiological studies. October 24-26, 2022. Kingsport, TN. Health section of the Tennessee Environmental Conference.

3. Alcime, P., Abd Ar Rafie*, S., and **T. C. Hazen**. Invited Seminar. Biogeochemical Responses of Burns . August 4, 2022. Knoxville, TN UTK REU NSF CEE summer students.
4. **Hazen, T. C.** Invited. Careers in Academia, National Labs and Industry. July 25, 2022. Knoxville, TN. UTK REU NSF CEE summer students.
5. Wu*, X., S. Gushgari Doyle, L. Lui, T. Neilsen, Y. Liu, N. Hess, S. Jagadamma, **T. C Hazen**, A. P. Arkin, and R. Chakraborty. Contributed. Distinct Depth-discrete Profiles of Microbial Communities and Geochemical Insights in the Subsurface Critical Zone. Honolulu, Hawai'i. 10-15 July 2022. Goldschmidt2022.
6. **Hazen, T. C.** Invited Webinar. Environmental Systems Biology: The Whole is Greater than the Sum of its Parts – Team Science. June 21, 2022. Knoxville, TN. Microbial Insights.
7. Fukai*, I., K. Ash, D. Williams, A. P. Arkin, and **T. C. Hazen**. Invited NNSA Webinar. Microbial Signatures of Nuclear Fuel Cycle Activities in the Environment. June 17, 2022. Online. MTV DOE NNSA 2022 University Program Review (UPR) invited by Sean C. Stave PNNL.
8. Fukai*, I., K. Ash, D. Williams, A. P. Arkin, and **T. C. Hazen**. Invited. Microbial Signatures of Nuclear Fuel Cycle Activities in the Environment. June 6-8, 2022. Ann Arbor, MI. MTV DOE NNSA 2022 University Program Review (UPR).
9. Abd Ar Rafie*, S., M. F. Campa-Ayala, C. Rawn, J. Keum, and **T. C. Hazen**. Contributed. Methanotrophs And Methane Hydrates for Wastewater Desalination: Forming Methane Hydrates in Salt Solutions. Washington, DC. June 9-13, 2022. ASM Microbe 2022.
10. Li*, Y., K. Ash, D. C. Joyner, D. E. Williams, I. Alamilla, P. McKay, C. Iler, B. Green, F. Kara-Murdoch, C. Swift, F. Löffler, and **T. C. Hazen**. Contributed. Decay of SARS-CoV-2 RNA at 4° and 20°C in raw university student residence for wastewater-based epidemiology. Washington, DC. June 9-13, 2022. ASM Microbe 2022.
11. Walker*, K. F., E. R. Dixon, D. C. Joyner, K. A. Lowe, F. L. Poole, X. Ge, M. P. Thorgersen, D. Ning, Y. Fan, J. P. Michael, J. D. Van Nostrand, L. M. Lui, X. Wu, J. L. Goff, M. W. W. Adams, R. Chakraborty, D. A. Elias, R. L. Wilpiszeski, J. Zhou, M. W. Fields, A. P. Arkin, P. D. Adams, and **T. C. Hazen**. Contributed. Diurnal and Seasonal Fluctuations within 27 Contaminated Subsurface Wells. Washington, DC. June 9-13, 2022. ASM Microbe 2022.
12. **Hazen, T. C**. Invited. Hazen Lab Studies for EPS Alumni Board Meeting. May 6, 2022. Knoxville, TN. Earth and Planetary Sciences Alumni Board Spring Meeting Strong Hall.
13. **Hazen, T. C.** Invited. PAWES-Protecting and Advancing Water, Environment and Sustainability an ERC with SPARKS? Lighting Talk. May 5, 2022. Knoxville, TN. SPARKS (Seeking Partnerships to Advance Research, Knowledge, and Science) UT Office of Research, Innovation and Economic Development.
14. **Hazen, T. C.,** Y. Li, K. Ash, D. C. Joyner, D. E. Williams, P. McKay, I. Alamilla, and C. North. Invited. Raw wastewater surveillance for SARS-CoV-2 in the University of Tennessee student residential buildings. April 6, 2022. Charlotte, NC. 2022 Global EnviroSummit. (https://www.envirosummit.com/schedule/).
15. Goddard, D. Blog. February 10, 2022. Hazen Offers Expertise to Peruvian Officials, and Scientists in Wake of Oil Spill. https://cee.utk.edu/hazen-offers-expertise-to-peruvian-officials-scientists-in-wake-of-oil-spill/
16. **Hazen, T. C.** Invited Webinar. Repsol Oil Spill in Peru. Online. Lima, Peru. February 8, 2022. National Service of Protected Areas (SERNANP) from the Ministry of Environment (MINAM).
17. **Hazen, T. C.** Invited Webinar. Exxon Valdez vs. Deepwater Horizon and Considerations for Peru Repsol Spill. Online. Lima, Peru. January 27, 2022. Pontificia Universidad Católica del Perú. https://pucp.zoom.us/webinar/register/WN_fxuMvZBkTmanioIkjgJ_Qw
18. **Hazen, T. C**. Invited. Lessons Learned from the Deepwater Horizon Oil Spill Response and Omics. Online, December 13, 2021. Louisiana Technical University CEE Departmental Seminar.
19. **Hazen, T. C**. Invited. Environmental Systems Biology: The Whole is Greater than the Sum of it's Parts – Team Science. Online, August 6, 2021. Louisiana Tech Environmental Class.
20. **Hazen, T. C.** Invited. Wastewater Based Epidemiology during the Covid-19 Pandemic at the University of Tennessee, Knoxville. September 16, 2021. Charlotte, NC. Global ENVIRO Summit https://www.envirosummit.com/
21. **Hazen, T. C.** Invited. Biosensors for Detecting Nuclear Production Activity in the Environment (Consortium for Monitoring, Technology, and Verification (MTV)). September 8-10, 2021. Office of Defense Nuclear Nonproliferation Research and Development, University Program Review (UPR) 2021 Meeting.
22. Fukai*, I., and **T. C. Hazen.** 2021. Germ Anti-Warfare: Evaluating Microbial Biosensors for Nuclear Arms Nonproliferation. 9th Annual Oak Ridge Postdoctoral Association (ORPA) Research Symposium, Oak Ridge, TN, July 28–29, 2021.
23. **Hazen, T. C.** Invited. After Chat June 21 3:45-4:30PM. "Environmental Systems Biology: The Whole is Greater than the Sum of it's Parts – Team Science" ASM Environmental Microbiology Award. World Microbe Forum, Online, June 20-24, 2021. American Society for Microbiology and Federation of European Microbiological Societies. World Microbe Forum <meetingsmarketing@asmusa.org>.

24. Walker*, K. F., E. R. Dixon, D. C. Joyner, K. A. Lowe, F. L. Poole, X. Ge, M. P. Thorgersen, D. Ning, Y. Fan, J. P. Michael, Y. Fu, R. Tian, Y. Wang, J. D. V. Nostrand, L. M. Lui, X. Wu, M. W. W. Adams, R. Chakraborty, D. A. Elias, R. L. Wilpiszeski, J. Zhou, M. W. Fields, A. P. Arkin, P. D. Adams, and **T. C. Hazen**. Contributed. Diurnal and Seasonal Fluctuations with the Subsurface: A 17-Week Survey of Groundwater and Sediment in 27 Contaminated Wells. World Microbe Forum, Online, June 20-24, 2021. American Society for Microbiology and Federation of European Microbiological Societies. World Microbe Forum <meetingsmarketing@asmusa.org>.
25. Rafie*, S. A. A., K. P. Hoyt, M. R. Schubert, M. T. Kerr, L. R. Blentlinger, A. M. Faiia, A. Szynkiewicz, J. F. Franklin, S. P. Horn, and **T. C. Hazen**. Contributed. Soil bacterial response to prescribed fires in a southern Appalachian clear cut with fuel manipulation. World Microbe Forum, Online, June 20-24, 2021. American Society for Microbiology and Federation of European Microbiological Societies. World Microbe Forum <meetingsmarketing@asmusa.org>.
26. Putt*, A., P. Pineda, I. Alamilla, A. Salim, A. P. Arkin, P. D. Adams, and **T. C. Hazen**. Contributed. Response of Filterable Microbes to a Beta-Cyclodextrin Injection. World Microbe Forum, Online, June 20-24, 2021. American Society for Microbiology and Federation of European Microbiological Societies. World Microbe Forum <meetingsmarketing@asmusa.org>.
27. Pineda, P., I. Alamilla, A. Salim, A. Putt, and **T. C. Hazen**. Contributed. Comparison of Bacterial DNA Extraction from Stream Water. World Microbe Forum, Online, June 20-24, 2021. American Society for Microbiology and Federation of European Microbiological Societies. World Microbe Forum <meetingsmarketing@asmusa.org>.
28. Ash, K. T., Y. Li, D. C. Joyner, D. E. Williams, I. Alamilla, P. McKay, B. Green, C. Iler, F. Kara-Murdoch, C. Swift, F. Löffler, and **T. C. Hazen**. Contributed. Miles Away From Ordinary: Raw Wastewater Surveillance For The Novel SARS-CoV-2 Virus On The University of Tennessee - Knoxville Campus. World Microbe Forum, Online, June 20-24, 2021. American Society for Microbiology and Federation of European Microbiological Societies. World Microbe Forum <meetingsmarketing@asmusa.org>.
29. Li, Y., K. Ash, D. C. Joyner, D. E. Williams, C. Iler, I. Alamilla, P. McKay, B. Green, F. Kara-Murdoch, C. Swift, F. Löffler, and **T. C. Hazen**. Contributed. Decay of SARS-CoV-2 and Pepper Mild Mottle Virus (PMMoV) RNA in raw wastewater to inform application in wastewater-based epidemiology of the University of Tennessee student residential buildings. World Microbe Forum, Online, June 20-24, 2021. American Society for Microbiology and Federation of European Microbiological Societies. World Microbe Forum <meetingsmarketing@asmusa.org>.
30. Joyner, D. C., and **T. C. Hazen**. Contributed. Managing Your Graduate Career: Guidelines for Success. World Microbe Forum, Online, June 20-24, 2021. American Society for Microbiology and Federation of European Microbiological Societies. World Microbe Forum <meetingsmarketing@asmusa.org>.
31. **Hazen, T. C**., I. Fukai, A. P. Arkin, E. Alm, and H. Dulai. Invited. Environmental Surveillance for Biological Traces of Radionuclide Sources. MTV Monthly Seminar, online, 15 May 2021. University of Michigan.
32. **Hazen, T. C**. Invited. Environmental Systems Biology: The Whole is Greater than the Sum of it's Parts – Team Science. World Microbe Forum, Online, June 20-24, 2021. American Society for Microbiology and Federation of European Microbiological Societies. World Microbe Forum <meetingsmarketing@asmusa.org>.
33. Harik, A.-M., **T. C. Hazen**, D. C. Joyner, and S. Rafie. Contributed. Imaging and Analysis of Methanotroph Induced Bioaggregation in Sand. World Microbe Forum, Online, June 20-24, 2021. American Society for Microbiology and Federation of European Microbiological Societies. World Microbe Forum <meetingsmarketing@asmusa.org>.
34. Griffiths, Z., A. Putt, M. Campa, D. Joyner, J. Miller, O. Pelz, N. GaraJayeva, P. Gardinali, and **T. C. Hazen**. Contributed. Observing the Indigenous Microbial Community Response to Crude Oil Amendment in Aerobic and Anerobic Conditions. World Microbe Forum, Online, June 20-24, 2021. American Society for Microbiology and Federation of European Microbiological Societies. World Microbe Forum <meetingsmarketing@asmusa.org>.
35. Fukai, I., and **T. C. Hazen**. Contributed. Evaluation of Microbial Biosensors with Applications In Nuclear Arms Nonproliferation. World Microbe Forum, Online, June 20-24, 2021. American Society for Microbiology and Federation of European Microbiological Societies. World Microbe Forum <meetingsmarketing@asmusa.org>.
36. Campa, M. F., J. C. See, L. Unverdorben, O. Wright, K. A. Roth, J. M. Niles, D. Ressler, E. Macatugal, A. Putt, S. M. Techtmann, **T. C. Hazen**, and R. Lamendella. Contributed. Geochemistry, land coverage, and multiomics data differentiate streams in Pennsylvania based on unconventional oil and gas activity. World Microbe Forum, Online, June 20-24, 2021. American Society for Microbiology and Federation of European Microbiological Societies. World Microbe Forum <meetingsmarketing@asmusa.org>.
37. **Hazen, T. C.** Invited. Careers in National Labs. U Mass Amherst online, 5/16/21.
38. Zhang, A., D. M. Needham, A. E. Kazakov, W. Zheng, S. Zhao, Y. Yin, D. A. Weitz, **T. C. Hazen**, E. J. Alm, N. S. Baliga, A. M. Deutschbauer, J.-M. Chandonia, M. W. Fields, T. R. Northen, J. D. Wall, M. W. W. Adams, M. Auer, K. Bender, G. Butland, R. Chakraborty, D. A. Elias, P. S. Novichkov, A. Mukhopadhyay, G. E. Siuzdak, D. A. Stahl, P. J. Walian, J. Zhou, A. P. Arkin, and P. D. Adams. Invited. Strain dynamics and functional diversity of

22 high-quality single cell genomes from ENIGMA ground water. February 22-24, 2021. Washington, DC. 2021 Genomic Sciences Program (GSP) Annual Principal Investigator (PI) Meeting. ORAU www.orau.gov › gsp2021.

39. Gushgari-Doyle, S., M. O. Yee, J. V. Kuehl, H. J. Smith, M. P. Thorgersen, X. Ge, A. E. Otwell, T. L. Lie, K. A. Hunt, M. W. W. Adams, E. J. Alm, N. S. Baliga, J.-M. Chandonia, A. M. Deutschbauer, D. A. Elias, M. W. Fields, **T. C. Hazen**, T. R. Northen, A. Mukhopadhyay, G. E. Siuzdak, D. A. Stahl, P. J. Walian, J. Zhou, R. Chakraborty, A. P. Arkin, P. D. Adams. Invited. Targeted Isolation Using Field-Informed Approaches. February 22-24, 2021. Washington, DC. 2021 Genomic Sciences Program (GSP) Annual Principal Investigator (PI) Meeting. ORAU www.orau.gov › gsp2021.
40. Hunt, K. A., A. E. Otwell, S. Bowman, S. D. Wankel, K. F. Walker, E. R. Dixon, M. Rodriguez, K. A. Lowe, D. C. Joyner, A. Carr, L. Lui, T. Nielsen, N. S. Baliga, **T. C. Hazen**, D. A. Stahl, A. P. Arkin, P. D. Adams. Invited. Resolving Biotic and Abiotic Controls of Nitrous Oxide Flux in a Subsurface Site Contaminated with High Nitrate Concentrations. February 22-24, 2021. Washington, DC. 2021 Genomic Sciences Program (GSP) Annual Principal Investigator (PI) Meeting. ORAU www.orau.gov › gsp2021.
41. Ning, D., Y. F., L. M. Lui, J. P. Michael, Y. Fu, J. D. Van Nostrand, R. Tian, Y. Wang, K. F. Walker, E. R. Dixon, A. D. Putt, D. E. Williams, D. C. Joyner, K. A. Lowe, F. L. Poole, X. Ge, M. P. Thorgersen, M. W. W. Adams, R. Chakraborty, X. Wu, D. A. Elias R. L. Wilpiszeski, J. Zhou, M. W. Fields, **T. C. Hazen**, A. P. Arkin, and P. D. Adams. Invited. Physical size matters in groundwater bacterial community assembly. February 22-24, 2021. Washington, DC. 2021 Genomic Sciences Program (GSP) Annual Principal Investigator (PI) Meeting. ORAU www.orau.gov › gsp2021.
42. Lui*, L. M., E. L.-W. Majumder*, H. J. Smith*, H. K. Carlson, F. V. Netzer, N. Nielsen, M. Peng, X. Tao, A. Zhou, M. Price, J. V. Kuehl, A. J. Hendrickson, V. Trotter, S. Gushgari-Doyle, J. Valenzuela, A. Otwell, K. Hunt, A. Carr, K. Walker, E. Dixon, F. Poole, M. Thorgersen, X. Ge, M. W. W. Adams, E. J. Alm, N. S. Baliga, J.-M. Chandonia, A. M. Deutschbauer, D. A. Elias, M. W. Fields, **T. C. Hazen**, T. R. Northen, A. Mukhopadhyay, G. E. Siuzdak, D. A. Stahl, P. J. Walian, J. Zhou, R. Chakraborty, A. P. Arkin, and P. D. Adams. Invited. Mechanism across scales: integrating laboratory and field studies for microbial ecology as illustrated by the ENIGMA SF. February 22-24, 2021. Washington, DC. 2021 Genomic Sciences Program (GSP) Annual Principal Investigator (PI) Meeting. ORAU www.orau.gov › gsp2021.
43. **Hazen, T. C.,** E. R. Kelly*, A. Putt, K. Walker, D. C. Joyner, I. Fukai, K. Lowe, M. Rodriguez Jr, M. W. Fields, R. Chakraborty, X. Wu, D. Stahl, T. Lie, M. W. W. Adams, F. Poole, P. J. Walian, J. Zhou, J. V. Nostrand, T. R. Northen, J.-M. Chandonia, A. P. Arkin, and P. D. Adams. Invited. Cone Penetrometer 3-D Characterization of Y-12 Site to Determine the Hydrological, Geological and Biogeochemistry Best Sites for ENIGMA Subsurface Observatories. February 22-24, 2021. Washington, DC. 2021 Genomic Sciences Program (GSP) Annual Principal Investigator (PI) Meeting. ORAU www.orau.gov › gsp2021.
44. Goddard, D. Press Release. Faculty Recognized for Cited Research. January 12, 2021, Knoxville, TN. https://tickle.utk.edu/faculty-recognized-for-cited-research/
45. Gushgari-Dolye, S., A. P. Arkin, L. M. Lui, R. Chakraborty, **T. C. Hazen** and X. Wu. Contributed. Functional Diversity of Arthrobacter Strains Across the Dynamic Capillary Fringe and Adjacent Sediment Zones. December 16, 2020, San Francisco, CA. AGU Fall Meeting.
46. Wu, X., D. C. Joyner, **T. C Hazen**, R. G. Malana, and R. Chakraborty. Invited. Applying Stable Isotopes for Source Fingerprinting of Dissolved Organic Nitrogen in Groundwater. Goldschmidt2020.
47. Goddard, D. Researchers' Testing Program Aims to Protect UT from COVID-19. August 21, 2020. UT News. https://news.utk.edu/2020/08/21/researchers-testing-program-protect-from-covid-19/
48. Miller, J. I., Z. Griffiths, S. Techtmann, J. Fortney, N. Mahmoudi, D. Joyner, J. Liu, S. Olesen, E. Alm, A. Fernandez, P. Gardinali, N. GaraJayeva, F. S. Askerov, O. G. Brakstad, O. Pelz, M. Kuijper and **T. C. Hazen**. Contributed. Microbial Community Structure and Oil Biodegradation in a Hypoxic Marine Environment. May 6, 2020. Dublin, Ireland (online). SETAC SciCon SETAC Europe 30th Annual Meeting.
49. Salim, A. A., P. Pineda, I. Alamilla, A. Putt, and **T. C. Hazen**. Invited. A Novel approach for Characterizing the Ultra-Micro Size-Fraction Community. April 13, 2020. Knoxville, TN. EURēCA Undergraduate UTK Annual Research Meeting.
50. Salim, A. A., A. Putt, and **T. C. Hazen**. Invited. Learning and growing as a Scholar : My Experience as an Undergraduate Researcher. April 14, 2020. Knoxville, TN. 1794 UTK Annual Scholars Showcase one of 20 finalists.
51. Fuqai, Isis and **T. C. Hazen**. 2020. Biosensors for Detecting Nuclear Production Activity in the Environment. March 12, 2020. Ann Arbor, MI. MTV, University of Michigan.
52. Walker, K. F., E. R. Dixon, D. C. Joyner, K. A. Lowe, F. L. Poole, X. Ge, M. P. Thorgersen, D. Ning, Y. Fan, J. P. Michael, Y. Fu, R. Tian, Y. Wang, J. D. V. Nostrand, L. M. Lui, X. Wu, K. J. Davis, M. W. W. Adams, R. Chakraborty, D. A. Elias, R. L. Wilpiszeski, J. Zhou, M. W. Fields, **T. C. Hazen**, A. P. Arkin and P. D. Adams.

Invited. Spatiotemporal Dynamics of Groundwater and Sediment: Geochemistry, Microbial Communities and Activities in a Contaminated Aquifer. February 23-26, 2020. Washington, DC. 2020 Genomic Sciences Program (GSP) Annual Principal Investigator (PI) Meeting. ORAU www.orau.gov › gsp2020.

53. Chakraborty, R., X. Wu, D. C. Joyner, **T. C. Hazen**, R. G. Malana, A. P. Arkin and P. D. Adams. Invited. Applying Stable Isotopes for Source Fingerprinting of Dissolved Organic Nitrogen in Groundwater. February 23-26, 2020. Washington, DC. 2020 Genomic Sciences Program (GSP) Annual Principal Investigator (PI) Meeting. ORAU www.orau.gov › gsp2020.
54. Needham, D. M., A. Zhang, J.-M. Chandonia, D. Chivian, L. M. Lui, W. Zheng, S. Zhao, Y. Yin, D. A. Weitz, **T. C. Hazen**, P. S. Novichkov, J. Zhou, E. J. Alm, A. P. Arkin and P. D. Adams. Invited. Integrating data and algorithms from the ENIGMA project into KBase. February 23-26, 2020. Washington, DC. 2020 Genomic Sciences Program (GSP) Annual Principal Investigator (PI) Meeting. ORAU www.orau.gov › gsp2020.
55. Lui, L. M., T. Nielsen, H. J. Smith, F. V. Netzer, E. L.-W. Majumder, J. V. Kuehl, F. Song, A. Sczesnak, M. P. Thorgesen, X. Ge, F. L. Poole, C. J. Paradis, K. F. Walker, K. A. Lowe, D. C. Joyner, D. Ning, J. M. Rodriquez, A. B. Aaring, B. A. Adams, D. Williams, J. D. V. Nostrand, G. M. Zane, M. W. W. Adams, J. Zhou, R. Chakraborty, J. D. Wall, D. A. Stahl, **T. C. Hazen**, M. W. Fields, A. Arkin and P. Adams. Invited. A Method for Circularizing Microbial Genomes from Metagenomics Data. February 23-26, 2020. Washington, DC. 2020 Genomic Sciences Program (GSP) Annual Principal Investigator (PI) Meeting. ORAU www.orau.gov › gsp2020.
56. Lui, L. M., H. J. Smith, F. V. Netzer, K. B. D. León, E. L.-W. Majumder, J. V. Kuehl, F. Song, A. Sczesnak, T. Nielsen, M. P. Thorgesen, X. Ge, F. L. Poole, B. P. Bowen, S. M. Kosina, C. J. Paradis, K. F. Walker, K. A. Lowe, D. C. Joyner, J. M. Rodriquez, B. A. Adams, D. Williams, J.-W. Moon, J. D. V. Nostrand, D. Ning, Y. Fu, W. Shi, Y. Li, D. J. Curtis, Y. Fan, L. Wu, R. Tian, G. M. Zane, A. B. Aaring, X. Wu, A. E. Kazakov, J.-M. Chandonia, P. S. Novichkov, P. J. Walian, R. Chakraborty, M. W. W. Adams, J. Zhou, T. R. Northen, J. D. Wall, D. A. Stahl, D. A. Elias, **T. C. Hazen**, M. W. Fields, A. P. Arkin and P. D. Adams. Invited. Core Values: Spatial Variation in Microbial Function, Activity, and Community Assembly in Groundwater and Sediment from a Contaminated Subsurface Aquifer. February 23-26, 2020. Washington, DC. 2020 Genomic Sciences Program (GSP) Annual Principal Investigator (PI) Meeting. ORAU www.orau.gov › gsp2020.
57. Hunt, K. A., A. V. Carr, K. F. Walker, E. R. Dixon, M. R. Jr, K. A. Lowe, D. C. Joyner, A. E. Otwell, S. D. Wankel, N. S. Baliga, **T. C. Hazen**, D. A. Stahl, A. P. Arkin and P. D. Adams. Invited. High nitrous oxide emissions from a nitrate contaminated subsurface indicate significant metabolic activity. February 23-26, 2020. Washington, DC. 2020 Genomic Sciences Program (GSP) Annual Principal Investigator (PI) Meeting. ORAU www.orau.gov › gsp 2020
58. Dixon, E. R., K. F. Walker, D. Williams, and **T. C. Hazen**. Contributed. Modeling Dynamic Geochemical Processes: How Diurnal and Seasonal Water Table Fluctuations Influence Contaminated Groundwater Geochemistry. December 10, 2019, San Francisco, CA. AGU Fall Meeting.
59. Wu, X., L. Lui, Y. Liu, N. Justice, T. Simmons, T. Nielsen, S. Jagadamma, N. J. Hess, **T. C. Hazen**, A. P. Arkin, and R. Chakraborty. Contributed. Insights into the Depth-resolved Geochemical Constraints on Microbial Community Structure and Metabolic Potential for Carbon Cycling in Shallow Subsurface Sediment. December 10, 2019, San Francisco, CA. AGU Fall Meeting.
60. Serrano Matos, Y., A. Gonzalez, A. Rivera, D. Williams, **T. C. Hazen**, and G. A. Toranzos. Contributed. Prophage and CRISPR Sequences Detected in Enterococci Isolates From Soils and Waters with Low Anthropogenic Disturbances. November 20-24, 2019, Anaheim, CA. Annual Biomedical Research Conference for Minority Students (ABRCMS) 2019.
61. Miller, J. I., S. M. Techtmann, J. Fortney, N. Mahmoudi, D. C. Joyner, J. Liu, S. Olesen, E. Alm, A, Fernandez, P. Gardinali, N. GaraJayeva, F. S. Askerov and **T. C. Hazen**. Contributed. Potential for rapid microbial biodegradation of petroleum hydrocarbons in hypoxic marine environments. San Antonio, TX. October 7-9, 2019. International Petroleum Environmental Conference Annual Meeting.
62. Putt, A. D., K. McBride, B.G. Adams, and **T. C. Hazen.** Contributed. Ten-year investigation of the subsurface microbiome in a variably saturated contaminant pathway with two carbon-amendments. September 22-25, 2019. Phoenix, AZ. Geological Society of America Annual Meeting and Exposition.
63. Dixon, E. R., K. F. Walker, and **T. C. Hazen**. Contributed. Modeling Dynamic Geochemical Processes: How Water Table Fluctuations Influence RedOx Conditions in the Presence of Contamination. September 22-25, 2019. Phoenix, AZ. Geological Society of America Annual Meeting and Exposition.
64. **Hazen, T. C.** Invited. Environmental Systems Biology of the S-3 Ponds at Oak Ridge Reservation. September 12, 2019. Knoxville, TN. Environmental Engineering Departmental Seminar, University of Tennessee.
65. Kothari, A., H. Liu, V. Trotter, A. Tang, D. Soneja, H. Zhang, J.-M. Chandonia, D. Cirri, H. Carlson, **T. C. Hazen**, H. Carlson, N. Daliang, F. Poole, M.W.W. Adams, J. Zhou, A. Deutschbauer, and A. Mukhopadhyay. Invited.

Mining Newly Discovered Native Plasmids for Genetic Modification of Intractable Environmental Strains. September 4, 2019. Berkeley, CA. ENIGMA Annual Retreat.

66. Zeng, L; V. Munoz, D. Joyner, A. Putt, X. Wu, R. Chakraborty, **T. C. Hazen**, and P. J. Walian. Invited. Image-based Characterization of OR.R-FRC Integrated Survey Groundwater. September 4, 2019. Berkeley, CA. ENIGMA Annual Retreat.
67. Kazakov, A. E., L. M. Lui, P. S. Novichkov, N. B. Justice, T. B. Simmons, S. J. Spencer, C. J. Paradis, K. A. Lowe, A. M. Rocha, S. Jagadamma, D. C. Joyner, A. Aaring, X. Wu, R. Chakraborty, E. J. Alm, **T. C. Hazen**, A. P. Arkin and P. D. Adams. Invited. Functional profiling of nitrogen cycle genes and taxonomic characterization of EB106 and EB271 sediment core samples. September 4, 2019. Berkeley, CA. ENIGMA Annual Retreat.
68. Ge, X., M. P. Thorgersen, F. L. Poole II, E. L. Majumder, A. M. Deutschbauer, J.-M. Chandonia, P. S. Novichkov, G. Siuzdak, P. D. Adams, A. P. Arkin, **T. C. Hazen**, and M. W. W. Adams. Invited. Characterization of Metal Resistance and Molybdenum Utilization Capability of New Microbial Strains Isolated from Contaminated Oak Ridge Sediments. September 4, 2019. Berkeley, CA. ENIGMA Annual Retreat.
69. Xue, J., E. L.-W. Majumder, T. Huan, E. M. Forsberg, A. D. Putt, **T. C. Hazen**, J. D. Wall, and G. Siuzdak. Invited. Activity of Sulfur-Containing Metabolites in Regulating Bacterial Respiration. September 4, 2019. Berkeley, CA. ENIGMA Annual Retreat.
70. Gionfriddo, C. M., R. L. Wilpiszeski, A. M. Wymore, Ji-Won Moon, M. Podar, A. V. Palumbo, M. W. Fields, **T. C, Hazen**, J. D. Wall, N. S. Baliga, D. A. Stahl, X. Ge, F. Poole II, M. W. W. Adams, R. Chakraborty, Y. Fan, J. Van Nostrand, J. Zhou, A. P. Arkin, and D. A. Elias. Invited. Using In-field Bioreactors to Monitor Microbial Community Dynamic Shifts with Geochemical Perturbations. Metabolites in Regulating Bacterial Respiration. September 4, 2019. Berkeley, CA. ENIGMA Annual Retreat.
71. Hunt, K. A., A. E. Otwell, J. Hardwicke, F. von Netzer, E. J. Alm, N. S. Baliga, A. M. Deutschbauer, M. W. Fields, **T. C. Hazen**, T. R. Northen, J. D. Wall, M. W. W. Adams, M. Auer, K. Bender, G. Butland, R. Chakraborty, J.-M. Chandonia, D. A. Elias, P. S. Novichkov, A. Mukhopadhyay, G. E. Siuzdak, P. J. Walian, J. Zhou, A. P. Arkin, P. D. Adams, and D. A. Stahl. Invited. Field nitrous oxide as a tractable indicator for subsurface biotic and abiotic processes and testable lab simulations. September 4, 2019. Berkeley, CA. ENIGMA Annual Retreat.
72. Zhang, A. N., J.-M. Chandonia, S. Zhao, A. E. Kazakov, P. S. Novichkov, W. Zheng, D. A. Weitz, N. S. Baliga, A. M. Deutschbauer, M. W. Fields, **T. C. Hazen**, T. R. Northen, J. D. Wall, M. W. W. Adams, M. Auer, K. Bender, G. Butland, R. Chakraborty, D. A. Elias, A. Mukhopadhyay, A. K. Singh, G. E. Siuzdak, D. A. Stahl, P. J. Walian, J. Zhou, E. J. Alm, A. P. Arkin and P. D. Adams. Invited. Building a reference-based metagenomics workflow in Kbase. September 4, 2019. Berkeley, CA. ENIGMA Annual Retreat.
73. Dijkgraaf, Arjen. News Blog. Actieve bodembacterie is er gloeiend bij. June 25, 2019. C2W. https://www.c2w.nl/nieuws/actieve-bodembacterie-is-er-gloeiend-bij/item20690.
74. ScienceDaily. News Blog. Scientists hit pay dirt with new microbial research technique. June 24, 2019. https://www.sciencedaily.com/releases/2019/06/190624111537.htm.
75. Brand, S. and M. Chung. News Blog. Scientists hit pay dirt with new microbial research technique. June 24, 2019. AAAS/EurekAlert!. https://www.eurekalert.org/pub_releases/2019-06/dbnl-shp062119.php.
76. Brand, S. and M. Chung. News Blog. Scientists hit pay dirt with new microbial research technique - A better method for studying microbes in the soil will help scientists understand large-scale environmental cycles. June 24, 2019. SeedQuest. https://www.seedquest.com/news.php?type=news&id_article=107914.
77. LongRoom News. News Blog. Scientists hit pay dirt with new microbial research technique. June 24, 2019. LongRoom News. https://www.longroom.com/discussion/1535062/scientists-hit-pay-dirt-with-new-microbial-research-technique.
78. Brand, S. and M. Chung. News Blog. Scientists hit pay dirt with new microbial research technique. June 24, 2019. Phys.Org. https://phys.org/news/2019-06-scientists-dirt-microbial-technique.html.
79. Brand, S. and M. Chung. News Blog. Scientists hit pay dirt with new microbial research technique. June 24, 2019. Lab Manager. https://www.labmanager.com/news/2019/06/scientists-hit-pay-dirt-with-new-microbial-research-technique#.XRZAvi_MzUI.
80. DOE Science News Source. News Blog. Scientists hit pay dirt with new microbial research technique. June 21, 2019. Newswise. https://www.newswise.com/doescience/?article_id=714768&returnurl=aHR0cHM6Ly93d3cubmV3c3dpc2UuY29tL2FydGljbGVzL2xpc3Q= .
81. Kazakov, A. E., L. M. Lui, P. S. Novichkov, N. B. Justice, T. B. Simmons, S. J. Spencer, C. J. Paradis, K. A. Lowe, A. M. Rocha, S. Jagadamma, D. C. Joyner, A. Aaring, X Wu, R. Chakraborty, T. C. Hazen, P. D. Adams, and A. P. Arkin. Contributed. Functional characterization of nitrogen cycle genes in shotgun metagenomic datasets. June 21, 2019, San Francisco, CA. ASM Microbe 2019.

82. Majumder, E. L. W., T. Huan, E. M. Forsberg, A. D. Putt, **T. C. Hazen**, J. D. Wall, and G. Siuzdak. Contributed. Activity of sulfur-containing metabolites in regulation bacterial respiration. June 21, 2019, San Francisco, CA. ASM Microbe 2019.
83. Serrano Matos, Y., A. Gonzalez, A. Rivera, D. Williams, **T. C. Hazen**, and G. A. Toranzos. Contributed. *Enterococcus* spp. and environment as a reservoir of genes for the survival and fitness. June 20-24, 2019, San Francisco, CA. ASM Microbe 2019.
84. Wiscovitch Russo, R., Y. Narganes-Storde, **T. C. Hazen**, and G. A. Toranzos. Contributed. 16S rRNA comparative analysis of Vieques and Guayanilla coprolites. June 20-24, 2019, San Francisco, CA. ASM Microbe 2019.
85. Gonzalez, A., R. Wiscovitch, **T. C. Hazen**, and G. A. Toranzos. Contributed. Pristine Environments and the *Escherichia coli* pangenome: a gene tool box for survival. June 20-24, 2019, San Francisco, CA. ASM Microbe 2019.
86. Zeng, L., D. Parkinson, D. A. Elias, R. Chakraborty, **T. C. Hazen** and P. J. Walian. Contributed. Characterization of Oak Ridge Reservation Sediment by Micro-Computerized Tomography. June 20-24, 2019, San Francisco, CA. ASM Microbe 2019.
87. Chen See, J., N. Ulrich, H. Nwanosike, C. McLimans, V. Tokarev, J. Wright, M. F. Campa, T. C. Hazen, C. Grant, J. Niles, S. Brewer, and R. Lamendella. Contributed. Antibiotic Resistant Bacteria Associated with Hydraulic Fracturing. June 20-24, 2019, San Francisco, CA. ASM Microbe 2019.
88. Campa, M. F., S. Brewer, B. H. Allen, R. Murdoch, S. M. Techtmann, R. Lamendella and **T. C. Hazen**. Contributed. Comparative genomics elucidate the bacterial mechanism of resistance to the biocide 2-2-dibromo-3-nitrilopropionamide. June 20-24, 2019, San Francisco, CA. ASM Microbe 2019.
89. Satinover, S., M. F. Campa, **T. C. Hazen** and A. P. Borole. Flowback Water Treatment and Hydrogen Production using Microbial Electrolysis Cells. June 20-24, 2019, San Francisco, CA. ASM Microbe 2019.
90. Rafie, S. A. A., K. P. Hoyt, M. R. Schubert, S. P. Horn, and **T. C. Hazen**. Changes in Microbial Community Structure after Controlled Burn Treatment of Temperate Hardwood and Mixed Forests. June 20-24, 2019, San Francisco, CA. ASM Microbe 2019.
91. Miller, J. I., S. Techtmann, and **T. C. Hazen**. Contributed. Microbial Community Structure and Functional Potential in Hypoxic Marine Environments. June 20-24, 2019, San Francisco, CA. ASM Microbe 2019.
92. Putt, A. D., K. McBride, B.G. Adams, N. Daliang, P.J. Walian, K. Lowe, J. Zhou, and **T. C. Hazen**. Contributed. Long-Term Full-Scale Field Study of Repeated Emulsified Vegetable Oil Injection for Bioimmobilization of Heavy Metals with a Focus on Hydrogeology, the Ultramicrobacterial Community, and Memory Response. June 20-24, 2019, San Francisco, CA. ASM Microbe 2019.
93. **Hazen, T. C.** Invited. UT-ORNL Governor's Chair selected by Clarivate Analytics as being among the world's most cited researchers for 2018. June14, 2019. Tennessee Engineer 20(1):40.
94. **Hazen, T. C.** Invited. UT-ORNL Governor's Chair Program Benefits Society. June14, 2019. Tennessee Engineer 20(1):31.
95. **Hazen, T. C.** Invited. Hazen Researches Effects of Fracking on Water Health. June14, 2019. Tennessee Engineer 20(1):17.
96. **Hazen, T. C.** Invited. Be an Influencer: Involvement in professional organizations gives scientists a unique opportunity to influence their field while at the same time building the networks that help them advance their careers. June 9, 2019, Oak Ridge, TN. ORNL Today.
97. Alm, E., **Hazen, T. C.**, A. P. Arkin, and D. Graham. Invited. Environmental Surveillance for Radionuclide Sources. May 21, 2019, Ann Arbor. MTV Kickoff Meeting NNSA University of Michigan
98. Arkin, A. P., **Hazen, T. C.**, E. Alm, and D. Graham. Invited. Modeling of Biological and Abiotic Data to Predict Nuclear Process Marker Presence and Age. May 21, 2019, Ann Arbor. MTV Kickoff Meeting NNSA University of Michigan.
99. **Hazen, T. C.**, A. P. Arkin, E. Alm, and D. Graham. Invited. SLiME – Structured Learning in Microbial Ecology Model. May 21, 2019, Ann Arbor. MTV Kickoff Meeting NNSA University of Michigan.
100. Goddard, D. Homeland Security News Wire. Examining the safety of using dispersants in oil spill clean ups. May 7, 2019. http://www.homelandsecuritynewswire.com/dr20190507-examining-the-safety-of-using-dispersants-in-oil-spill-clean-ups
101. Freiesleben, S. Ingenioren. Rapport sår tvivl om skadeligheden af kemikalier fra oprydningen efter Deepwater Horizon May 6, 2019. https://ing.dk/artikel/rapport-saar-tvivl-skadeligheden-kemikalier-oprydningen-efter-deepwater-horizon-225843
102. **Hazen, T. C.**, A. P. Arkin, E. Alm, and D. Graham. Invited. SLiME – Structured Learning in Microbial Ecology Model. May 2, 2019, Atlanta, GA. NNSA Biosensing Kickoff Meeting NNSA Georgia Tech.
103. Mayes, M. A., J. Brenner, J. Phillips, R. K. Quinn, C. López Lloreda, B. Yudkin, M. F. Campa, D. Sihi, Y. Song, **T. C. Hazen**, J. Zheng, C. O'Connell, W. Silver, and B. Newman. Invited. Topographic Controls over Greenhouse

Gas Emissions from Puerto Rican Tropical Rainforest Soils. April 30, 2019. DOE 2019 Environmental System Science (ESS) PI Meeting.

104. Geissberger, T., A. Putt, Sa'ad Abd Ar Rafie, D. C. Joyner, and **T. C. Hazen**. Invited. What Microbes are in Recreational and Urban Park Streams of Knoxville? April 16-17, 2019. Knoxville, TN. UT's Exhibition of Undergraduate Research and Creative Achievement (EUReCA).
105. Gordon, E., A. M. Harik, and **T. C. Hazen**. Invited. Impact of Methane Pulse Frequency on TCE Degradation as Conducted by *Methanosarcina quisquiliarum*. April 16-17, 2019. Knoxville, TN. UT's Exhibition of Undergraduate Research and Creative Achievement (EUReCA).
106. Salim, A., Ti. Tran, A. Putt, and **T. C. Hazen**. Invited. Ultramicrobacteria Candidate Genome Database Project. April 16-17, 2019. Knoxville, TN. UT's Exhibition of Undergraduate Research and Creative Achievement (EUReCA).
107. Goddard, D. UT News. UT Expert Co-Authors Study on Oil Spill Clean Up Safety. April 17, 2019. Catalyst.
108. Goddard, D. News Blog. Hazen Co-Authors Study on Oil Spill Clean-Up Safety. Tennessee Today April 17, 2019.
109. Goddard, D. News Blog. News story from Big News Network on Tuesday 16 April 2019. April 17, 2019. Big News Network
110. Goddard, D. News Blog. Is it safe to use dispersants in oil spill cleanups? April 17, 2019. ANI. https://www.aninews.in/news/science/is-it-safe-to-use-dispersants-in-oil-spill-clean-ups20190416190407/.
111. Goddard, D. News Blog. Minimal risk associated with the use of dispersants. April 17, 2019. The Asian Age. https://www.asianage.com/life/more-features/170419/minimal-risk-associated-with-the-use-of-dispersants.html.
112. Goddard, D. News Blog. Minimal risk associated with the use of dispersants. April 17, 2019. DECCAN Chronicle. https://www.deccanchronicle.com/lifestyle/health-and-wellbeing/170419/minimal-risk-associated-with-the-use-of-dispersants.html
113. Goddard, D. News Blog. New report examines Oil dispersants did little harm to ocean, academy says ort examines the safety of using dispersants in oil spill clean ups. April 17, 2019. Tennessee Today.
114. **Hazen, T. C.,** M. F. Campa, and S. Satinover. Invited. Fracking: the Good, Bad, and Ugly. April 16, 2019. Seniors for Creative Learning, O'Connor Senior Center, Knoxville, TN
115. Goddard, D. News Blog. New report examines the safety of using dispersants in oil spill clean ups. April 16, 2019. News story from Eurasia Review on Tuesday 16 April 2019
116. Goddard, D. News Blog. New report examines the safety of using dispersants in oil spill clean ups. April 16, 2019. Lab Manager. https://www.labmanager.com/news/2019/04/new-report-examines-safety-of-using-dispersants-in-oil-spill-clean-ups#.XLYFkC3MwQ9
117. Goddard, D. News Release. New report examines the safety of using dispersants in oil spill clean ups. April 16, 2019. PHYSORG. https://phys.org/news/2019-04-safety-dispersants-oil-ups.html
118. Goddard, D. News Release. New report examines the safety of using dispersants in oil spill clean ups. April 15, 2019. AAAS. https://www.eurekalert.org/pub_releases/2019-04/uota-nre041519.php.
119. Goddard, D. Science Blog. New report examines the safety of using dispersants in oil spill clean ups. April 15, 2019. Science Codex. https://www.sciencecodex.com/new-report-examines-safety-using-dispersants-oil-spill-clean-ups-625808.
120. Brainard, J. Science News in Brief. Oil dispersants did little harm to ocean, academy says. April 13, 2019. Science 362:106.
121. Lux, T. and T. Baurick. Radio. Coastal News Roundup: Were The Chemicals Used To Clean Up BP Oil Spill Harmful? April 12, 2019. New Orleans Public Radio. https://www.wwno.org/post/coastal-news-roundup-were-chemicals-used-clean-bp-oil-spill-harmful.
122. Johnson, J. News. Dispersants one of many oil cleanup tools, panel says. April 10, 2019. https://cen.acs.org/environment/Dispersants-one-oil-cleanup-tools/97/i15.
123. Cornwall, W. News Blog. Do chemicals that disperse oil spills make the problem worse? Probably not, new study finds. April 5, 2019. Science Now. http://www.sciencemag.org/news/2019/04/do-chemicals-disperse-oil-spills-make-problem-worse-probably-not-new-study-finds
124. Geissberger, T., A. Putt, Sa'ad Abd Ar Rafie, D. C. Joyner, and **T. C. Hazen**. Invited. What Microbes are in Recreational and Urban Park Streams of Knoxville? March 26, 2019. Knoxville, TN. 7th Annual Watershed Symposium.
125. ScienceDaily. Using Tiny Organisms to Unlock Big Environmental Mysteries. March 7, 2019. https://www.sciencedaily.com/releases/2019/03/190307091451.htm
126. EurekAlert!. Using Tiny Organisms to Unlock Big Environmental Mysteries. March 7, 2019. https://www.eurekalert.org/pub_releases/2019-03/dbnl-uto030619.php
127. Newswise. Using Tiny Organisms to Unlock Big Environmental Mysteries. March 7, 2019. https://www.newswise.com/doescience/?article_id=709241&returnurl=aHR0cHM6Ly93d3cubmV3c3dpc2UuY29tL2FydGljbGVzL2xpc3Q=

128. Targeted_News_Service. Using Tiny Organisms to Unlock Big Environmental Mysteries. March 7, 2019. https://www.newswise.com/doescience/?article_id=709241&returnurl=aHR0cHM6Ly93d3cubmV3c3dpc2UuY29tL2FydGljbGVzL2xpc3Q=
129. States_News_Service. Using Tiny Organisms to Unlock Big Environmental Mysteries. March 7, 2019. https://www.newswise.com/doescience/?article_id=709241&returnurl=aHR0cHM6Ly93d3cubmV3c3dpc2UuY29tL2FydGljbGVzL2xpc3Q=
130. Blog: Terry Hazen: What Microbes can do for You. March 4, 2019. Oak Ridge, TN. ORNL https://www.ornl.gov/news/terry-hazen-what-microbes-can-do-you
131. Walker, K. F., K. A. Lowe, B. G. Adams, E. R. Dixon, D. C. Joyner, M. R. Jr., M. W. Fields, D. A. Elias, **T. C. Hazen**, A. P. Arkin and P. D. Adams. Invited. ENIGMA: Long-Term Continuous Monitoring Gives Insight into Patterns Between Groundwater and Weather Events. February 24-27, 2019, Tysons, VA. DOE 2019 Genomic Sciences Program Annual Principal Investigator (PI) Meeting.
132. Ning, D., R. Tian, J. D. V. Nostrand, L. Wu, P. Zhang, W. Shi, L. Wu, Y. Zhang, Y. Yang, D. J. Curtis, Z. He, M. B. Smith, A. M. Rocha, C. S. Smillie, S. W. Olesen, C. J. Paradis, J. H. Campbell, J. L. Fortney, T. L. Mehlhorn, K. A. Lowe, J. E. Earles, J. Phillips, S. M. Techtmann, D. C. Joyner, D. A. Elias, K. L. Bailey, R. A. H. Jr., S. P. Preheim, M. C. Sanders, J. Yang, M. A. Mueller, W. A. Lancaster, B. J. Vaccaro, F. L. P. II, M. W. Fields, E. J. Alm, **T. C. Hazen**, M. W. W. Adams, P. D. Adams, A. P. Arkin and J. Zhou. Invited. ENIGMA: Assembly Mechanism of Subsurface Microbial Community under Stress Gradient and Adaptation of Super Phylum Patescibacteria with Genome Simplicity February 24-27, 2019, Tysons, VA. DOE 2019 Genomic Sciences Program Annual Principal Investigator (PI) Meeting.
133. Lui, L. M., H. J. Smith, F. v. Netzer, K. B. D. León, E. L.-W. Majumder, J. V. Kuehl, F. Song, A. Sczesnak, T. Nielsen, M. P. Thorgersen, X. Ge, F. L. P. II, B. P. Bowen, S. M. Kosina, C. J. Paradis, K. F. Walker, K. A. Lowe, D. C. Joyner, M. R. Jr, B. Adams, D. Williams, J.-W. Moon, J. D. V. Nostrand, D. Ning, Y. Fu, W. Shi, Y. Li1, D. J. Curtis, Y. Fan, L. Wu, R. Tian, G. M. Zane, A. B. Aaring, X. Wu, A. E. Kazakov, J.-M. Chandonia, P. S. Novichkov, P. J. Walian, R. Chakraborty, M. W. W. Adams, J. Zhou, T. R. Northen, J. D. Wall, D. A. Stahl, D. A. Elias, **T. C. Hazen**, M. W. Fields, A. P. Arkin and P. D. Adams. Invited. ENIGMA: Core Values: Large-Scale Analysis of Environmental Constraints on Microbial Community Assembly, Activity, and Dispersal in Groundwater and Sediment from a Contaminated Subsurface Aquifer. February 24-27, 2019, Tysons, VA. DOE 2019 Genomic Sciences Program Annual Principal Investigator (PI) Meeting.
134. Ge, X., M. P. Thorgersen, F. L. P. II, E. L. Majumder, G. M. Zane, K. B. D. León, J. Moon, C. J. Paradis, F. v. Netzer, D. A. Stahl, J. M. Chandonia, P. S. Novichkov, A. M. Deutschbauer, J. D. Wall, **T. C. Hazen**, M. W. W. Adams, A. P. Arkin and P. D. Adams. Invited. ENIGMA: Characterization of Microbial Strains from Contaminated Groundwater and from Contaminated Sediments Using Environmental Concentrations of Metals at the Oak Ridge Reservation. February 24-27, 2019, Tysons, VA. DOE 2019 Genomic Sciences Program Annual Principal Investigator (PI) Meeting.
135. Wilpiszeski, R. L., C. M. Gionfriddo, A. M. Wymore, J.-W. Moon, K. A. Lowe, M. Podar, D. C. Joyner, C. C. Brandt, A. V. Palumbo, M. W. Fields, **T. C. Hazen**, J. D. Wall, N. S. Baliga, D. A. Stahl, M. W. W. Adams, F. P. III, R. Chakraborty, Y. Fan, J. D. V. Nostrand, J. Zhou, D. A. Elias, A. P. Arkin and P. D. Adams. Invited. ENIGMA: Using in-field bioreactors to monitor microbial community dynamic shifts with geochemical perturbations. February 24-27, 2019, Tysons, VA. DOE 2019 Genomic Sciences Program Annual Principal Investigator (PI) Meeting.
136. Smith, H. J., M. W. Fields, L. M. Lui, R. Miller, D. C. Joyner, F. von Netzer, A. D. Putt, **T. C. Hazen**, A. P. Arkin and P. D. Adams. Invited. ENIGMA: Novel Bio-Signatures and Activity in Fractionated Groundwater from Uncontaminated and Contaminated Sites. February 24-27, 2019, Tysons, VA. DOE 2019 Genomic Sciences Program Annual Principal Investigator (PI) Meeting.
137. **Hazen, T. C.** Invited. BP Angola Cruise Microbial Ecology. February 14, 2019, BP Angola. Skype on line.
138. Putt, A. Biostimulation of Ultramicrobacteria Consortia to aid in Uranium Bioimmobilization. Three Minute Thesis. January 11, 2019, Knoxville, TN.
139. **Hazen*, T. C**. Invited. Environmental Systems Biology. December 19-20, 2018. Houston, TX. NASA Life Detection/Microbial Monitoring Workshop.
140. The_University_of_Tennessee_Knoxville. UT Home to Several Most Cited Researchers. December 12, 2018. https://news.utk.edu/2018/12/12/ut-home-to-several-most-cited-researchers/
141. States_News_Service. UT Home to several Most Cited Researchers'. December 12, 2018.
142. TendersInfo-News(India). United States : Highly Cited Researchers list includes 15 from ORNL. December 4, 2018.
143. Printed_Electronics_Now. 'Highly Cited Researchers' List Includes 15 From ORNL. December 4, 2018. https://www.printedelectronicsnow.com/contents/view_breaking-news/2018-12-04/highly-cited-researchers-list-includes-15-from-ornl/

144. ORNL_Review. 'Highly Cited Researchers' List Includes 15 From ORNL. December 3, 2018. https://www.ornl.gov/news/highly-cited-researchers-list-includes-15-ornl
145. States_News_Service. 'Highly Cited Researchers' List Includes 15 From ORNL. December 3, 2018.
146. Targeted-News_Service. 'Highly Cited Researchers' List Includes 15 From Oak Ridge National Laboratory. December 3, 2018.
147. **Hazen*, T. C**. Invited. Environmental Systems Biology Approach to Bioremediation. October 30, 2018. McLean, VA. Bioremediation workshop being hosted by The MITRE Corporation.
148. News Blog. UT Professor participates in Fracking Research. October 17, 2018. FIRST BELL ASCE. http://asee.bulletinmedia.com/briefing?d=2018-10-17&doctypecode=asee.
149. Newspaper. UT fracking study to break new ground, may lead to antibiotic-resistant microbes**.** October 16, 2018. Knox Sentinel. https://www.knoxnews.com/story/news/2018/10/16/ut-study-how-does-fracking-affect-east-tennessees-water-supply/1646383002/
150. Salvemini, C. News. UT fracking study to break new ground, may lead to antibiotic-resistant microbes. Knoxville News Sentinel. October 12, 2018. Knoxville, TN, Knoxville News Sentinel.
151. States_News_Service(United_States). UT Researches Effects of Fracking on Water Health. Environment. October 12, 2018. Knoxville, TN, States News Service (United States): https://news.utk.edu/2018/2010/2012/ut-researches-effects-of-fracking-on-water-health/.
152. Goddard, David. Interview. UT Researches Effects of Fracking on Water Health. October 16, 2018. Knoxville, TN. UT News. http://news.utk.edu/2018/10/12/ut-researches-effects-of-fracking-on-water-health/
153. Bell, A. F. "UT Professor participates in Fracking Research." October 12, 2018. FIRST BELL ASCE.
154. **Hazen*, T. C**. Invited. ENIGMA GeoDD campaign. October 9, 2018. Berkeley, CA. Lawrence Berkeley National Laboratory, ENIGMA SAC and Retreat.
155. Putt*, A. D.,, K. McBride, B. G. Adams, N. Daliang, P. J. Walian, K. Lowe, J. Zhou, **T. C. Hazen.** Long-term full-scale field study of repeated Emulsified Vegetable Oil Injection for bioimmobilization of heavy metals with new focus on hydrogeology, ultramicrobacteria, and memory response. October 9, 2018. Berkeley, CA. Lawrence Berkeley National Laboratory, ENIGMA SAC and Retreat.
156. Walker*, K. F., B. G. Adams, K. Lowe, M. Rodriquez, D. C. Joyner, and **T. C. Hazen**. Long-Term Continuous Weather and Groundwater Monitoring at Y-12 for Suggesting ENIGMA Field and Lab Studies. October 9, 2018. Berkeley, CA. Lawrence Berkeley National Laboratory, ENIGMA SAC and Retreat.
157. **Hazen*, T. C.** Invited. Laboratory Safety. August 29, 2018. Knoxville, TN. Department of Nuclear Engineering, University of Tennessee.
158. Knoxville_News-Sentinel. UT focuses on search for two vice chancellors. August 15, 2018. Knoxville News-Sentinel. Knoxville, TN, Tennessee.
159. Haag, T. UT Announces Search for Two Vice Chancellors. August 13, 2018. University of Tennessee Campus News. Knoxville, TN, University of Tennessee. https://news.utk.edu/2018/08/13/ut-announces-search-for-two-vice-chancellors/
160. **Hazen*, T. C.,** S. M. Techtmann[3], J. Fortney, D. Joyner, O. G. Brakstad, N. Mahmoudi, S. Pfiffner, J. Liu, S. Olesen, E. Alm, A. Fernandez, P. Gardinali, D. Ning, J. Zhou, and T. Linley. Contributed. The ecology of oil-degrading microbiome in six deep sea basins worldwide. August 13, 2018. Leipzig, Germany. ISME 2018.
161. Campa*, M. F., S. M. Techtmann, C. Gibson, X. Zhu, M. Patterson, A. Garcia de Matos Amaral, N. Ulrich, S. R. Campagna, C. J. Grant, R. Lamendella, and **T. C. Hazen.** Contributed. Hydraulic fracturing impacted aquatic microbial community response to the biocides glutaraldehyde and 2-2-dibromo-3-nitrilopropionamice. August 14, 2018. Leipzig, Germany. ISME 2018.
162. McBride*, K., S. Jagadamma, N. Daliang, J.-W. Moon, C. Paradis, D. Joyner, T. Mehlhorn, and **T. C. Hazen**. Contributed. Do microbes have memory? Repeated exposure to emulsified vegetable oil may increase degradation ability of native microbial communities. August 13, 2018. Leipzig, Germany. ISME 2018.
163. Kothari*, A., Y.-W. Wu, M. Charrier, L. Rajeev, A. Rocha, C. Paradis., **T. C. Hazen**, S. Singer, and A. Mukhopadhyay. Contributed. Identification and characterization of a mercury resistance plasmid shows latent functions harbored in pristine groundwaters. August 14, 2018. Leipzig, Germany. ISME 2018.
164. Chakraborty*, R., X. Wu, L. Wu, Y. Liu, P. Zhang, J. Zhou, N. Hess, and **T. C. Hazen**. Contributed. Microbial interactions with dissolved organic matter drive carbon dynamics and community succession in groundwater. August 14, 2018. Leipzig, Germany. ISME 2018.
165. **Hazen, T. C.** Invited Keynote. Structured learning in microbial ecology using microbial community structure to predict geochemistry for food, water and energy. July 20, 2018. Beijing, China. Modelling the Nexus of Food, Energy and Water Systems.
166. **Hazen, T. C.** Invited. Oil Bioremediation of Soil and Sediment Worldwide. July 19, 2018. Beijing, China. China Petroleum

167. **Hazen, T. C.,** D. C. Joyner, A.-M. Harik, and A. Putt. Invited. Governor's School Students. June 13, 2018. Knoxville, TN. University of Tennessee.
168. Miller*, J. I., S. M. Techtmann, J. Fortney, N. Mahmoudi, D. C. Joyner, J. Liu, S. Olesen, E. Alm, A. Fernandez, P. Gardinali, and **T. C. Hazen**. Contributed. Anoxic hydrocarbon degradation in Caspian Sea. June 7-11, 2018. Atlanta, GA. American Society for Microbiology Annual Meeting, Microbe 2018.
169. McBride*, K., S. Jagadamma, N. Daliang, J.-W. Moon, C. Paradis, D. C. Joyner, T. Mehlhorn, and **T. C. Hazen**. Contributed. Do microbes have memory? Repeated exposure to emulsified vegetable oil may increase degradation ability of native microbial communities. June 7-11, 2018. Atlanta, GA. American Society for Microbiology Annual Meeting, Microbe 2018.
170. Campa*, M. F., S. M. Techtmann, C. Gibson, X. Zhu, M. Patterson, A. Garcia de Matos Amaral, N. Ulrich, S. R. Campagna, C. J. Grant, R. Lamendella, and **T. C. Hazen**. Contributed. A comparison of the impacts of the biocides Glutaraldehyde and DBNPA on aquatic microbial community structure and degradation potential. June 7-11, 2018. Atlanta, GA. American Society for Microbiology Annual Meeting, Microbe 2018.
171. Johnston*, E. R., M. Kim, J. K Hatt, J. R Phillips, Q. Yao, Y. Song, C. Pan, **T. C. Hazen**, M. A. Mayes, and K. T. Konstantinidis. Contributed. Phosphate addition increases tropical soil respiration primarily by deconstraining microbial population growth. June 7-11, 2018. Atlanta, GA. American Society for Microbiology Annual Meeting, Microbe 2018.
172. **Hazen, T. C**. Invited. Moderator: Managing Stress: Microbial Community Responses to Environment Challenges. June 7-11, 2018. Atlanta, GA. American Society for Microbiology Annual Meeting, Microbe 2018.
173. **Hazen, T. C.** Invited. Microbial Community Structure Predicts Groundwater Geochemistry. May 11, 2018. Rio Piedras, PR. University of Puerto Rico RICE Program.
174. Press release. UT's Hazen Teams Up on Water Quality Breakthrough. May 4, 2018. Knoxville, TN. University of Tennessee, Tickle College of Engineering. http://www.engr.utk.edu/uts-hazen-teams-up-on-water-quality-breakthrough/.
175. **Hazen, T. C**. Plenary. Contrasting Ecosystem Responses Between EVOS and DWH. March 28, 2018. Anchorage, AK. Alaska Oil Spill Technology Symposium.
176. TV interviews. Invited. Puerto Rican students find temporary home for research in East Tennessee. March 6, 2018. Knoxville, TN. WVLT. http://www.wvlt.tv/content/news/Puerto-Rican-students-find-temporary-home-for-research-in-East-Tennessee-476051453.html
177. Goddard, David Interview. UT Offers Chance for Puerto Rico Students to Continue Work. March 5,2018. Knoxville, TN. UT News, Tennessee Today. https://news.utk.edu/2018/03/05/ut-offers-chance-for-puerto-rico-students-to-continue-work/
178. Putt, A.D., B. G. Adams, K. Fitzgerald, K. McBride, L. D. McKay, and **T. C. Hazen**. Poster. Ultramicrobacteria in Uranium Contaminated Y-12 Groundwater. 12, April 2018. Knoxville, TN. Geological Society of America 67th Annual Southeastern Section Meeting
179. Paradis, C. J., **T. C. Hazen***, A. P. Arkin, and P. D. Adams. Invited. In situ demonstration of sustained adaptation of a natural microbial community to transform substrates. February 26-28, 2018. Washington, DC. Genomic Sciences Program Annual PI Meeting. https://www.orau.gov/gsp2018/2018-GSP-Abstract-Book.pdf
180. Thorgersen, M. P., X. Ge, F. L. Poole, G. M. Zane, E. M. Forsberg, A. Deutschbauer, R. Chakraborty, **T. C. Hazen**, A. Mukhopadhyay, G. Siuzdak, J. D. Wall, J. Chandonia, P. Novichkov, M.W.W. Adams, A. P. Arkin, and P. D. Adams. Invited. Characterization of Microorganisms Resistant to Multiple Metals from the Contaminated Environment at the Oak Ridge Reservation. February 26-28, 2018. Washington, DC. Genomic Sciences Program Annual PI Meeting. https://www.orau.gov/gsp2018/2018-GSP-Abstract-Book.pdf
181. von Netzer, F., K. A. Hunt, J. Valenzula, A. Otwell, S. Turkarslan, N. S. Baliga, J.-W. Moon, K. Lowe, M. Rodriguez, D. Elias, D. C. Joyner, C. Paradis, S. Pfiffner, D. Williams, K. Fitzgerald, S. Brewer, B. Adams, **T. C. Hazen**, E. L.-W. Majumder, G. M. Zane, J. D. Wall, D. Ning, J. Zhou, M. T. Thorgersen, X. Ge, M. W.W. Adams, L. Lui, R. Chakraborty, H. Carlson, A. Deutschbauer, D. Vuono, K. Meinhardt, D. A. Stahl, A. P. Arkin, and P. D. Adams. Invited. Coupling of Field- and Lab-based Experiments to resolve controls of Nitrate Respiration Pathway Partitioning at the Oak Ridge Shallow Aquifer. February 26-28, 2018. Washington, DC. Genomic Sciences Program Annual PI Meeting. https://www.orau.gov/gsp2018/2018-GSP-Abstract-Book.pdf
182. Ning, D., Y. Deng, J. D. Van Nostrand, L. Wu, P. Zhang, Z. He, Y. Fu, D. J. Curtis, Y. Li, Y. Fan, M. B. Smith, A. M. Rocha, C. S. Smillie, S. W. Olesen, C. J. Paradis, J. H. Campbell, J. L. Fortney, T. L. Mehlhorn, K. A. Lowe, J. E. Earles, J. Phillips, S. M. Techtmann, D. C. Joyner, K. L. Bailey, R. A. Hurt Jr., S. P. Preheim, M. C. Sanders, J. Yang, M. A. Mueller, W. A. Lancaster, B. J. Vaccaro, F. L. Poole II, S. Brooks, D. B. Watson, A. Aaring, B. Adams, S. Brewer, K. De Leon, K. Fitzgerald, G. X. Ge, C. Hans, S. Kosina, L. Lui, E. Majumder, J.-W. Moon, A. Otwell, S. Pfiffner, H. Smith, M. Thorgersen, S. Turkarslan, F. von Netzer, D. Williams, S. X. Wu, G. Zane, A. Zelaya, E. J. Alm, N. S Baliga, A. M. Deutschbauer, M. W. Fields, **T. C. Hazen**, T. R. Northen, J. D. Wall,

M.W.W. Adams, R. Chakraborty, J.-M. Chandonia, D. A. Elias, D. A. Stahl, P. J. Walian, J. Zhou, A. P. Arkin, and P. D. Adams. Invited. Ecological Stochasticity in Subsurface Microbial Community Assembly under Stress Gradient: Application of A General Quantitative Framework. February 26-28, 2018. Washington, DC. Genomic Sciences Program Annual PI Meeting. https://www.orau.gov/gsp2018/2018-GSP-Abstract-Book.pdf

183. Arkin, A. P., D.A. Stahl, E. J. Alm, N. S. Baliga, A. M. Deutschbauer, M. W. Fields, **T. C. Hazen**, T. R. Northen, J. D. Wall, M.W.W. Adams, M. Auer, K. Bender, G. Butland, R. Chakraborty, J.-M. Chandonia, D. A. Elias, P. S. Novichkov, A. Mukhopadhyay, G. E. Siuzdak, P. J. Walian, J. Zhou, and P. D. Adams. Invited. ENIGMA Science Focus Area. February 26-28, 2018. Washington, DC. Genomic Sciences Program Annual PI Meeting. https://www.orau.gov/gsp2018/2018-GSP-Abstract-Book.pdf
184. Smith, H. J., A. Zelaya, I. Miller, D. C. Joyner, E. Couradeau, T. R. Northen, **T. C. Hazen**, M. W. Fields, A. P. Arkin, and P. Adams. Invited. Linking Activity to Phylogeny in Groundwater/Soil Ecosystems. February 26-28, 2018. Washington, DC. Genomic Sciences Program Annual PI Meeting. https://www.orau.gov/gsp2018/2018-GSP-Abstract-Book.pdf
185. Chakraborty, R., M. W. Fields, X. Wu, **T. C. Hazen**, H. J. Smith, T. R. Northen, Y. Liu, N. Hess, P. Zhang, J. Zhou, A. P. Arkin, and P. D. Adams. Invited. Natural Organic Matter Dynamics and ExoMetabolomics for Microbial Cultivation from the Shallow Subsurface at the Oak Ridge FRC. February 26-28, 2018. Washington, DC. Genomic Sciences Program Annual PI Meeting. https://www.orau.gov/gsp2018/2018-GSP-Abstract-Book.pdf
186. Alm, E. J., S. J. Spencer, V. K. Mutalik, **T. C. Hazen**, J.-M. Chandonia, J. Zhou, R. Chakraborty, A. Deutchbauer, A. P. Arkin, and P. D. Adams. Invited. Strain isolation, genome sequencing, and functional genomics reveals adaptive evolution of a *Pseudomonas* population at a human impacted field site. February 26-28, 2018. Washington, DC. Genomic Sciences Program Annual PI Meeting. https://www.orau.gov/gsp2018/2018-GSP-Abstract-Book.pdf
187. Lui, L. M., H.K. Carlson, A.W. Sczesnak, O. Erbilgin, M. De Raad, V. Mutalik, A. Kazakov, X. Wu, A. Aaring, J. Voriskova, J. Kuehl, M. Price, D. Chivian, N. B. Justice, T. Simmons, K. De Leon, D. C. Joyner, H. J. Smith, P.S. Novichov, A. M. Deutschbauer, R. Chakraborty, T. R. Northen, J. D. Wall, **T. C. Hazen**, M.W. Fields, A. P. Arkin, and P. D. Adams. Invited. Integration of metagenomics and consortia data to study microbial interactions and community assembly. February 26-28, 2018. Washington, DC. Genomic Sciences Program Annual PI Meeting. https://www.orau.gov/gsp2018/2018-GSP-Abstract-Book.pdf
188. Labor_Praxis. Invited. Hoffnung beim Kampf gegen Plastikmüll? February 16, 2018. https://www.laborpraxis.vogel.de/wissenschaft-forschung/articles/686874/
189. Labo_online. Invited. Plastikfressende Bakterien: mehr und vielfältigere Arten als bisher angenommen. February 9, 2018. https://www.labo.de/news/plastikfressende-bakterien--mehr-und-vielfaeltigere-arten-als-bisher-angenommen.htm
190. Innovations report. Invited. Es gibt mehr und vielfältigere plastikfressende Bakterien, als bisher angenommen. February 8, 2018. www.innovations-report.de/html/berichte/biowissenschaften-chemie/es-gibt-mehr-und-vielfaeltigere-plastikfressende-bakterien-als-bisher-angenommen.html
191. Vbio. Invited. Es gibt mehr und vielfältigere plastikfressende Bakterien, als bisher angenommen. February 8, 2018. www.vbio.de/informationen/alle_news/e17162?news_id=24698
192. Idw. Invited. Es gibt mehr und vielfältigere plastikfressende Bakterien, als bisher angenommen. February 8, 2018. https://idw-online.de/de/news688917
193. Technology Networks. Invited. Multi-Pronged Analysis Uncovers How Microbes Survive in Phosphorus-Poor Environments. January 25, 2018. https://www.technologynetworks.com/proteomics/news/multi-pronged-analysis-uncovers-how-microbes-survive-in-phosphorus-poor-environments-296769
194. SEEDDAILY. Invited. Researchers Reveal How Microbes Cope in Phosphorus-deficient Tropical Soil. January 25, 2018. www.seeddaily.com/reports/Researchers_reveal_how_microbes_cope_in_phosphorus_deficient_tropical_soil_999.html
195. Science Newsline. Invited. Researchers Reveal How Microbes Cope in Phosphorus-deficient Tropical Soil. January 23, 2018. www.sciencenewsline.com/news/2018012318350012.html
196. Newswise. Invited. Researchers Reveal How Microbes Cope in Phosphorus-deficient Tropical Soil. January 22, 2018. www.newswise.com/doescience/?article_id=688257&returnurl=aHR0cHM6Ly93d3cubmV3c3dpc2UuY29tL2FydGljbGVzL2xpc3Q=
197. EurekAlert! Invited. Researchers Reveal How Microbes Cope in Phosphorus-deficient Tropical Soil. January 22, 2018. https://www.eurekalert.org/pub_releases/2018-01/drnl-rrh012218.php
198. PhysORG. Invited. Researchers reveal how microbes cope in phosphorus-deficient tropical soil. January 22, 2018. https://phys.org/news/2018-01-reveal-microbes-cope-phosphorus-deficient-tropical.html

199. ORNL News. Internet. Researchers reveal how microbes cope in phosphorus-deficient tropical soil. January 22, 2018. Oak Ridge, TN. https://www.ornl.gov/news/researchers-reveal-how-microbes-cope-phosphorus-deficient-tropical-soil
200. **Hazen, T. C.** Invited. Panel discussion on professional organizations representing biological, environmental, and earth sciences. January 18, 2018. Oak Ridge, TN. Lunch & Learn Series ORNL.
201. Paradis, C., L. M. McKay*, and **T. C. Hazen**. Contributed. Exposure History Dependence of Microbial Mediated Substrate Transformation in Groundwater. December 4-7, 2017. Nashville, TN. National Groundwater Association annual meeting.
202. Johnston, E. R., M. Kim, J. K. Hatt, J. R. Phillips, Q. Yao, Y. Song, C. Pan, **T. C. Hazen**, M. A. Mayes, and K. T. Konstantidis. Invited. Phosphate addition increases CO_2 respiration in tropical soils primarily by promoting microbial growth. August 1-3, 2017, Pasco, WA. Multi-omics for Microbiomes EMSL Conference.
203. Mayes, M., Y. Song, Q. Yao, C. Pan, **T. C. Hazen**, G. Wang, X. Yang, Z. Li, A. Biswas, J. Wright, B. Turner, E. Johnston, M/ Kim, K. Konstantinidis, P. Thornton, M. Tfaily, L. Pasa-Tolic, and S. G. Tringe. Invited. Linking Proteogenomics with a Soil Carbon Decomposition Model. August 1-3, 2017, Pasco, WA. Multi-omics for Microbiomes EMSL Conference.
204. Lewis, A. J., M. F. Campa, **T. C. Hazen**, and A. P. Borole. Contributed. Unlocking Renewable Hydrogen from Biomass via Emergent Electroactive Biofilms. June 1-5, 2017. New Orleans, LA. American Society for Microbiology Annual Meeting, Microbe 2017.
205. Elias, D. A., A. J. King, S. P. Preheim, B. Crable, A. V. Palumbo, C. C. Brandt, S. D. Brown, M. Podar, A. P. Arkin, and **T. C. Hazen**. Contributed. Temporal Dynamics of In-Field Bioreactor Populations Reflect the Groundwater System and Respond Predictably to Perturbation. June 1-5, 2017. New Orleans, LA. American Society for Microbiology Annual Meeting, Microbe 2017.
206. Harik, A.*****, S. M. Techtmann, and **T. C. Hazen**. Water Swap: Control of Geochemistry Versus Microbial Community Composition on Hydrocarbon Degradation. June 1-5, 2017. New Orleans, LA. American Society for Microbiology Annual Meeting, Microbe 2017.
207. **Hazen, T. C.** Invited. Phenotypic Microarray Provides Functional Verification of Genotype, BIOLOG booth. June 4, 2017. New Orleans, LA. American Society for Microbiology Annual Meeting, Microbe 2017.
208. Campa, M. F., S. M. Techtmann, C. Gibson, M. L. Patterson, A. Garcia de Matos Amaral, R. Lamendella, and **T. C. Hazen**. Outstanding Abstract Award Presentation: The Impacts of the Biocide Glutaraldehyde on Community Structures and Degradation Potential in Streams Impacted by Hydraulic Fracturing. June 4, 2017. New Orleans, LA. American Society for Microbiology Annual Meeting, Microbe 2017.
209. Campa, M. F., S. M. Techtmann, C. Gibson, M. L. Patterson, A. Garcia de Matos Amaral, R. Lamendella, and **T. C. Hazen**. The Impacts of the Biocide Glutaraldehyde on Community Structures and Degradation Potential in Streams Impacted by Hydraulic Fracturing. June 1-5, 2017. New Orleans, LA. American Society for Microbiology Annual Meeting, Microbe 2017.
210. Campa, M. F., and **T. C. Hazen.** Phenotypic Microarray Characterization if Fracking Flowback water and streams, BIOLOG booth. June 3, 2017. New Orleans, LA. American Society for Microbiology Annual Meeting, Microbe 2017.
211. **Hazen, T. C.** Invited Plenary. ENIGMA Project: Lab to Field and Back - Environmental System Microbiome. April 25, 2017. Potomac, MD. 2017 DOE TES/SBR Joint Investigators Meeting.
212. Mayes, M. A., Y. Song, Q. Yao, C. Pan, **T. C. Hazen**, X. Yang, G. Wang, Z. Li, A. Biswas, B. Turner, S. J. Wright, S. G. Tringe, P. Thornton. Invited. Linking Meta-omics with the Microbial Enzyme Decomposition Model. April 25, 2017. Crystal City. 2017 DOE TES/SBR Joint Investigators Meeting.
213. Yao, Q., Z. Li, Y. Song, S. J. Wright, X. Guo, A. Biswas, S. G. Tringe, **T. C. Hazen**, B. L. Turner, M. Mayes, C. Pan. Invited. Characterizing microbe response to P availability in Panama soils by long term fertilization. March 2017, Walnut Creek, CA. DOE JGI user meeting.
214. **Hazen, T. C.** Invited. Is the Solution to Pollution Dilution i.e. Intrinsic Remediation? Oil Spills, Solvents, Metals, and Radionuclides (OH MY!!!!). February 23, 2017. Knoxville, TN. University of Tennessee Honors Faculty Lecture Series, Chancellor's Honors Program.
215. von Netzer, F., D. Gorman-Lewis, E. Shock, S. Turkarslan, C. E. Arens, A. W. Thompson, N. S. Baliga, A. Zhou, J. Zhou, A. Aaring, R. Chakraborty, J. W. Moon, D. Elias, D. C. Joyner, **T. C. Hazen**, H. Smith, M. Fields, F. Poole, M. W. W. Adams, H. Carlson, A. Deutschbauer, D. Vuono, K. Meinhardt, D. A. Stahl, A. P. Arkin, and P. D. Adams. Invited. Understanding the thermodynamic Foundations of microbial Growth Efficiencies in the Lab and Field. February 6-8, 2017. 2017 Genomic Sciences Program Annual PI Meeting.
216. Smith, H. J., A. Zelaya, I. Miller, D. Joyner, **T. C. Hazen**, M. W. Fields, A. P. Arkin, and P. D. Adams. Invited. Temporal Variability and Microbial Activity in Groundwater Ecosystems. February 6-8, 2017. 2017 Genomic Sciences Program Annual PI Meeting.

217. Ning, D., J. Zhou, Z. He, P. Zhang, J. D. Van Nostrand, L. Wu, R. Tian, E. J. Alm, **T. C. Hazen**, D. Elias, M. W. Fields, M. W. W. Adams, R. Chakraborty, D. Stahl, J. Wall, A. P. Arkin, and P. D. Adams. Invited. Stress mediates relative importance of deterministic and stochastic assembly in groundwater microbial communities. February 6-8, 2017. 2017 Genomic Sciences Program Annual PI Meeting.
218. Chakraborty, R., X. Wu, **T. C. Hazen**, Y. Liu, N. Hess, M. W. Fields, P. Zhang, L. Wu, J. Zhou, Q. Li, W. Yang, A. P. Arkin and P. D. Adams. Invited. Microbial Interactions with Natural Organic Matter Extracted from the Oak Ridge FRC. February 6-8, 2017. 2017 Genomic Sciences Program Annual PI Meeting.
219. Ling, F., J. Friedman, S. Zhao, M. B. Smith, A. M. Rocha, C. J. Paradis, J. Zhou, **T. C. Hazen**, E. J. Alm, A. P. Arkin, and P. D. Adams. Invited. Microbes at the blurred boundary of natural and built environments. February 6-8, 2017. 2017 Genomic Sciences Program Annual PI Meeting.
220. Paradis, C. J., **T. C. Hazen**, A. P. Arkin, and P. D. Adams. Invited. Exposure History Dependence of Microbial Mediated Substrate Transformation Rates in Groundwater. February 6-8, 2017. 2017 Genomic Sciences Program Annual PI Meeting.
221. **Hazen, T. C.** Invited Symposia. Environmental Justice and Disposal of Toxic Waste. January 24, 2017. Washington, D.C. Integrating Environment and Health, 17th National Conference and Global Forum on Science, Policy and the Environment. http://www.ncseconference.org/
222. Wu, X., **T. C. Hazen**, P. M. Fox, P. S. Nico, Q. Li, w. Yang, Y. Liu, N. J. Hess, P. Zhang, Y. Qin, and J. Zhou. Contributed. Interactions between Natural Organic Matter and Native Microbes in the Oak Ridge FRC Groundwater. December 11-15, 2016. San Francisco, CA. AGU Fall Meeting.
223. Song, Y., Q. Yao, G. Wang, X. Yang, C. Pan, E. Johnston, M. Kim, K. Konstantinidis, **T. C. Hazen**, and M. Mayes. Contributed. Integrating "omics" data into a biogeochemical model: A new model scheme to predict climate feedbacks from microbial function in tropical ecosystems. December 11-15, 2016. San Francisco, CA. AGU Fall Meeting.
224. **Hazen, T. C.** Invited. Deep Water Horizon Engineering Lessons' Learned. November 21, 2016. Knoxville, TN. Engineering Fundamentals College of Engineering.
225. **Hazen, T. C.** Plenary. Oil Biodegradation Potential in Deep Maritime Marine Basins Worldwide. November 8-10, 2016. New Orleans, LA. 23rd International Petroleum Environmental Conference (IPEC).
226. **Hazen, T. C.** and S. M. Techtmann. Invited. Metagenomic Applications in Environmental Monitoring and Bioremediation. October 26-29, 2016, Nanjing, Jiangsu Province, China. The 2016 China-US Joint Annual Symposium "International Nexus of Food, Energy, Water, and Soil"
227. Johnston, E. R., M. Kim, J. K. Hatt, J. R. Phillips, Q. Yao, Y. Song, C. Pan, **T. C. Hazen**, M. A. Mayes, and K. T. Konstantidis. Invited. Phosphate addition increases tropical soil respiration primarily by deconstraining microbial population growth. November 1-3, 2016, Chicago, IL. Argonne Soil Metagenomics Meeting.
228. **Hazen, T. C.** and G. S. Sayler. Invited. Environmental Systems Approaches to Bioremediation of Contaminated Sites. October 26-29, 2016, Nanjing, Jiangsu Province, China. The 2016 China-US Joint Annual Symposium "International Nexus of Food, Energy, Water, and Soil"
229. **Hazen, T. C.** Invited. Lessons from Deep Water Horizon? October 20, 2016. Knoxville, TN. University of Tennessee, Microbial Ecology.
230. **Hazen, T. C**. Invited. Life in the Slow Lane: Limits to Life in the Subsurface. September 30, 2016. Knoxville, TN. Micro 606.
231. **Hazen, T. C.** Invited. Methane: The New Paradigm. September 23, 2016. Knoxville, TN. UT Science Forum.
232. **Hazen, T. C**. Invited. Life in the Slow Lane: Limits to Life in the Subsurface. September 16, 2016. Oak Ridge, TN. Philosophical Society of the Oak Ridge Institute for Continued Learning.
233. **Hazen, T. C**. Invited. Oil bioremediation. September 9, 2016. Calgary, Canada. Cenovus.
234. **Hazen, T. C.** Invited. Systems Biology of Oil Biodegradation in 5 Deep Marine Basins, Implications from Deep Water Horizon? September 7, 2016. Knoxville, TN. University of Tennessee, Department of Biochemistry & Cellular and Molecular Biology Seminar.
235. **Hazen, T. C.** Invited. NSF GRFP to Microbiology Graduate Students. September 2, 2016. Knoxville, TN. University of Tennessee.
236. Ulrich, N., C. McLimans*, W. Bernard, J. R. Wright, M. F. Campa, **T. C. Hazen**, and R. Lamendella. Contributed. Metagenomics, metatranscriptomics, and single cell sequencing of microbial communities associated with hydraulic fracturing. August 21-26, 2016. Montreal, Canada. International Symposium for Microbial Ecology.
237. Ning, D., J. Wang, J. D. Van Nostrand, L. Wu, P. Zhang, Z. He, M. B. Smith, A. M. Rocha, S. W. Olesen, C. Paradis, J. H. Campbell, J. L. Fortney, T. L. Mehlhorn, K. A. Lowe, J. E. Earles, S. M. Techtmann, D. C. Joyner, D. Elias, K. L. Bailey, R. A. Hurt, S. P. Preheim, M. C. Sanders, M. A. Mueller, D. B. Watson, E. A. Dubinsky, P. D. Adams, A. P. Arkin, M. W. Fields, E. J. Alm, **T. C. Hazen**, A. Lancaster, B. J. Vaccaro, F. L. Poole, M. W. Adams, and J. Zhou. Contributed. Disentangling Ecological Processes and Drivers In Subsurface Microbial

Community Assembly In A Nuclear Waste Site. August 21-26, 2016. Montreal, Canada. International Symposium for Microbial Ecology.

238. Paradis, C., N. Mahmoudi, S. Jagadamma, D. Driver, K. O'Dell, S. Schaeffer, and **T. C. Hazen**. Contributed. Response of soil respiration and microbial community structure to simulated heavy precipitation and drought in a Lexington silt loam. August 21-26, 2016. Montreal, Canada. International Symposium for Microbial Ecology.
239. Campa, M. F., S. Techtmann, M. L. Patterson, A. Garcia de Matos Amaral, and **T. C. Hazen**. Contributed. Stream water microbial population resistance to biocides used in hydraulic fracturing fluids. August 21-26, 2016. Montreal, Canada. International Symposium for Microbial Ecology.
240. Curtis, D., P. Zhang, Z. He, A. M. Rocha, L. Wu, Q. Tu, Y. Qin, J. D. Van Nostrand, L. Wu, E. J. Alm, M. W. Fields, D. A. Elias, D. A. Stahl, **T. C. Hazen**, A. P. Arkin, P. D. Adams, and J. Zhou. Contributed. Microbial Populations Influencing Metal and Nitrogen Cycling are Structured Along Contaminant Gradients at a Nuclear Legacy Site. August 21-26, 2016. Montreal, Canada. International Symposium for Microbial Ecology.
241. Liu, J., J. L. Fortney, S. M. Techtmann, D. C. Joyner, and **T. C. Hazen**. Contributed. Microbial Community Changes and Crude Oil Biodegradation in Different Deep Oceans. August 21-26, 2016. Montreal, Canada. International Symposium for Microbial Ecology.
242. Justice, N. B., A. Sczesnak, T. C. Hazen, and A. P. Arkin. Contributed. Unraveling Community Assembly and Organism Interactions with Large Scale Enrichment Culturing. August 21-26, 2016. Montreal, Canada. International Symposium for Microbial Ecology.
243. Kothari, A., Y.-W. Wu, M. Charrier, L. Rajeev, A. M. Rocha, **T. C. Hazen**, P. Dehal, D. Chivian, S. Spencer, E. Alm, S. Singer, and A. Mukhopadhyay. Contributed. Plasmidome studies reveal a variety of horizontally transferred functions within the microbial communities at the Oak Ridge Field Research sites. August 21-26, 2016. Montreal, Canada. International Symposium for Microbial Ecology.
244. Paradis, C., N. Mahmoudi, S. Jagadamma, D. Driver, K. O'Dell, S. Schaeffer, and **T. C. Hazen**. Contributed. Response of soil respiration and microbial community structure to simulated heavy precipitation and drought in a Lexington silt loam. August 9, 2016. Oak Ridge, TN. Oak Ridge Institute for Science and Education (ORISE) Summer 2016 Graduate, Post Graduate, Employee Participant, and Faculty Poster Session.
245. Bailey, R. E., W. A. Henke, C. T. Davis, M. F. Campa, **T. C. Hazen**, A. W. Johnson, N. O. Hoilett, L. R. McAliley and J. H. Campbell. Contributed. Heavy-metal contamination and its effects on microbial community structure in soils near Picher, OK, within the Tar Creek Superfund Site. July 17-21, 2016. Miami, FL. The Extreme Science and Engineering Discovery Environment (XSEDE16).
246. Ribicic, D., O. G. Brakstad, R. Netzer, **T. C. Hazen**, and F. Drabløs. Invited. From simple to complex degradation of hydrocarbons. A concept of metagenome succession in oil-amended microcosms. June 27, 2016. Berlin, Germany. MaCuMBA Conference.
247. **Hazen, T. C.** Invited. Phenotypic Microarray Provides Functional Verification of Genotype, BIOLOG booth. June 19, 2016. Boston, MA. ASM Microbe Annual Meeting.
248. **Hazen, T. C.** Invited. Phenotypic Microarray Provides Functional Verification of Genotype, BIOLOG booth. June 18, 2016. Boston, MA. ASM Microbe Annual Meeting.
249. Ning, D., J. Wang, J. D. Van Nostrand, L. Wu, P. Zhang, Z. He, M. B. Smith, A. M. Rocha, S. W. Olesen, C. Paradis, J. H. Campbell, J. L. Fortney, T. L. Mehlhorn, K. A. Lowe, J. E. Earles, S. M. Techtmann, D. C. Joyner, D. Elias, K. L. Bailey, R. A. Hurt, S. P. Preheim, M. C. Sanders, M. A. Mueller, D. B. Watson, E. A. Dubinsky, P. D. Adams, A. P. Arkin, M. W. Fields, E. J. Alm, **T. C. Hazen**, A. Lancaster, B. J. Vaccaro, F. L. Poole, M. W. Adams, and J. Zhou. Contributed. Disentangling Ecological Processes and Drivers In Subsurface Microbial Community Assembly In A Nuclear Waste Site. June 16, 2016. Boston, MA. ASM Microbe Annual Meeting.
250. He, Z., P. Zhang, L. Wu, A. Rocha, Q. Tu, Z. Shi, Y. Qin, J. Wang, D. Curtis, J. Van Nostrand, L. Wu, D. Elias, D. Watson, M. Adams, M. Fields, E. Alm, **T. C. Hazen**, P. Adams, A. Arkin, and J. Zhou. Contributed. Microbial Functional Diversity Predicts Groundwater Contamination and Ecosystem Functioning. June 16, 2016. Boston, MA. ASM Microbe Annual Meeting.
251. Harik, A-M. and **T. C. Hazen**. Contributed. Methanotrophically Mediated Bioaggregation to Control Sand Dust. June 16, 2016. Boston, MA. ASM Microbe Annual Meeting.
252. McBride, K., A. Rossi, H. Woo, J. Wang, N. Labbe, and **T. C. Hazen**. Contributed. Xylan-degrading Bacteria Isolated and Characterized from Eastern Mediterranean Sea. June 16, 2016. Boston, MA. ASM Microbe Annual Meeting.
253. Brewer, S. S., M. F. Campa, A. Garcia de Matos Amaral, S. M. Techtmann, K. Fitzgerald, J. L. Fortney, and **T. C. Hazen**. Contributed. Isolation and Characterization of Anaerobic Microbial Communities from Hydraulic Fracturing Fluids. June 16, 2016. Boston, MA. ASM Microbe Annual Meeting.
254. Campa, M. F., S. Techtmann, M. L. Patterson, A. Garcia de Matos Amaral, R. Lamendella, C. Grant, and **T. C. Hazen**. Contributed. Environmental microbial community tolerance and adaptation to biocides use in hydraulic fracturing operations. June 16, 2016. Boston, MA. ASM Microbe Annual Meeting.

255. Curtis, D., P. Zhang, Z. He, A. M. Rocha, L. Wu, Q. Tu, Y. Qin, J. D. Van Nostrand, L. Wu, E. J. Alm, M. W. Fields, D. A. Elias, D. A. Stahl, **T. C. Hazen**, A. P. Arkin, P. D. Adams, and J. Zhou. Contributed**.** Microbial Communities Promoting Metal Reduction are Structured Along the Uranium Gradient at a Nuclear Legacy Site. June 16, 2016. Boston, MA. ASM Microbe Annual Meeting.
256. Liu J., J. L. Fortney, S. M. Techtmann, D. C. Joyner, and **T. C. Hazen**. Contributed. Microbial Community Response and Crude Oil Biodegradation in Different Deep Oceans. June 16, 2016. Boston, MA. ASM Microbe Annual Meeting.
257. **Hazen, T. C.** Invited. Paradigm change? Predicting water geochemistry from microbial community structure. June 8, 2016. Knoxville, TN. American Ecological Engineering Society Annual Meeting.
258. Youngquist, E., S. M. Hagen, S. M. Techtmann, and **T. C. Hazen**. Genomic Diversity of *Pseudoalteromonas* spp. from Geographically Distant Deep Marine Basins. April 13-14, 2016. Knoxville, TN. University of Tennessee Exhibition of Undergraduate Research and Creative Achievement (EUReCA).
259. Brewer, S. S., M. F. Campa, A. Garcia de Matos Amaral, S. M. Techtmann, K. Fitzgerald, J. L. Fortney, and **T. C. Hazen**. Contributed. Isolation and Characterization of Anaerobic Microbial Communities from Hydraulic Fracturing Fluids. April 13-14, 2016. Knoxville, TN. University of Tennessee Exhibition of Undergraduate Research and Creative Achievement (EUReCA).
260. McBride, K., A. Rossi, H. Woo, J. Wang, N. Labbe, and **T. C. Hazen**. Contributed. Xylan-degrading Bacteria Isolated and Characterized from Eastern Mediterranean Sea. April 7, 2016. Asheville, NC. National Council Undergraduate Research Annual Meeting.
261. Brewer, S. S., M. F. Campa, A. Garcia de Matos Amaral, S. M. Techtmann, K. Fitzgerald, J. L. Fortney, and **T. C. Hazen**. Contributed. Isolation and Characterization of Anaerobic Microbial Communities from Hydraulic Fracturing Fluids. April 7, 2016. Asheville, NC. National Council Undergraduate Research Annual Meeting.
262. **Hazen, T. C.** Invited. Oil Biodegradation in Marine Environments. March 31, 2016. Knoxville, TN. Guest Lecture in Environmental Writing Class, University of Tennessee.
263. **Hazen, T. C.** Invited. Microbial Community Structure Predicts Groundwater and Marine Geochemistry. March 16, 2016. Houghton, MI. Department of Biological Sciences, Michigan Technological University.
264. Campa, M. F., S. Techtmann, M. L. Patterson, A. Garcia de Matos Amaral, R. Lamendella, C. Grant, and **T. C. Hazen**. Contributed. Environmental microbial community tolerance and adaptation to biocides use in hydraulic fracturing operations. March 15, 2016. San Diego, CA. ACS Annual Meeting.
265. Liu J., J. L. Fortney, S. M. Techtmann, D. C. Joyner, and **T. C. Hazen**. Contributed. Microbial Community Response and Crude Oil Biodegradation in Different Deep Oceans. March 12, 2016. Knoxville, TN. 3rd Annual Southeastern Biogeochemistry Symposium.
266. Brewer, S. S., M. F. Campa, A. Garcia de Matos Amaral, S. M. Techtmann, K. Fitzgerald, J. L. Fortney, and **T. C. Hazen**. Contributed. Isolation and Characterization of Anaerobic Microbial Communities from Hydraulic Fracturing Fluids. March 12, 2016. Knoxville, TN. 3rd Annual Southeastern Biogeochemistry Symposium.
267. Kim, M., E. R. Johnston, **T. C. Hazen**, M. A. Mayes, C. Pan, Q. Yao, and K. T. Konstantinidis. Contributed. Response of Soil Microbial Communities to Phosphorus in Tropical Ecosystems. March 12, 2016. Knoxville, TN. 3rd Annual Southeastern Biogeochemistry Symposium.
268. Woo, H. L., and **T. C. Hazen**. Contributed. Using high throughput sequencing methods to identify keystone bacterial species in recalcitrant terrestrial organic matter transformation. March 12, 2016. Knoxville, TN. 3rd Annual Southeastern Biogeochemistry Symposium.
269. **Hazen, T. C.** Invited. Laboratory Safety. March 11, 2016. Knoxville, TN. Lunch and Learn UTK.
270. Thorgersen, M. P., B. J. Vaccaro, W. A. Lancaster, F. L. Poole, A. E. Kazakov, L. Rajeev, M. Garber, G. M. Zane, M. N. Price, K. M. Wetmore, A. M. Rocha, T. Mehlhorn, P. S. Novichkov, A. M. Deutschbauer, A. Mukhopadhyay, J. D. Wall, R. Chakraborty, **T. C. Hazen**, M. W. W. Adams, A. P. Arkin, and P. D. Adams. Invited Poster. Microbial responses to toxic metals in the Oak Ridge Reservation environment. March 6, 2016. Tyson's Corner, VA. DOE Genomic Sciences Contractor Annual Meeting.
271. Spencer, S. J., M. V. Tamminen, A. M. Rocha, **T. C. Hazen**, E. J. Alm, A. P. Arkin, and P. D. Adams. Invited Poster. Assays for spatial structure and trans domain dynamics in environmental communities. March 6, 2016. Tyson's Corner, VA. DOE Genomic Sciences Contractor Annual Meeting.
272. Rocha, A. M., B. Adams, C. Paradis, T. L. Mehlhorn, J. E. Earles, K. A. Lowe, D. M. Klingeman, D. B. Watson, D. C. Joyner, S. Jagadamma, J. L. Fortney, J. J. Zhou, J. D. Van Nostrand, M. W. W. Adams, R. Chakraborty, D. Elias, E. J. Alm, **T. C. Hazen**, A. P. Arkin, and P. D. Adams. Invited Poster. Temporal Variation in Groundwater Microbial Community Structure: Implications for Groundwater Monitoring. March 6, 2016. Tyson's Corner, VA. DOE Genomic Sciences Contractor Annual Meeting.
273. Kothari, A., Y.-W. Wu, M. Charrier, L. Rajeev, A. M. Rocha, **T. C. Hazen**, P. S. Dehal, D. Chivian, S. J. Spencer, E. J. Alm, S. Singer, A. Mukhopadhyay, A. P. Arkin, and P. D. Adams. Invited Poster. Extrachromosomal Plasmid DNA Project. March 6, 2016. Tyson's Corner, VA. DOE Genomic Sciences Contractor Annual Meeting.

274. Chakraborty, R., X. Wu, S. Jagadamma, **T. C. Hazen**, N. Justice, S. Jenkins, T. R. Northen, M. W. Fields, P. Fox, P. Nico, A. P. Arkin and P. D. Adams. Invited Poster. The Properties of and Microbial Interactions with Natural Organic Matter Extracted from Oak Ridge FRC. March 6, 2016. Tyson's Corner, VA. DOE Genomic Sciences Contractor Annual Meeting.
275. **Hazen, T. C.** Invited Seminar. Deepwater Horizon Oil Spill. February 19, 2016. Managua, Nicaragua. Seminar to 12th grade science classes at Lincoln International Academy.
276. Wu, X., S. Jagadamma, A. Lancaster, M. Adams, **T. C. Hazen**, N. Justice, and R. Chakraborty. Contributed. Microbial Interactions with Natural Organic Matter Extracted from the Oak Ridge FRC. December 15, 2015, San Francisco, CA. American Geophysical Union Annual Meeting.
277. **Hazen, T. C.,** Smith, M. B., Rocha, A. M., Smillie, C. S., Olesen, S. W., Paradis, C., Wu, L., Campbell, J. H., Fortney, J. L., Mehlhorn, T. L., Lowe, K. A., Earles, J. E., Phillips, J., Techtmann, S. M., Joyner, D. C., Elias, D. A., Bailey, K. L., Hurt, R. A., Preheim, S. P., Sanders, M. C., Yang, J., Mueller, M. A., Brooks, S., Watson, D. B., Zhang, P., He, Z., Dubinsky, E. A., Adams, P. D., Arkin, A. P., Fields, M. W., Zhou, J., and Alm, E. J. Keynote. Microbial Community Structure Predicts Groundwater Geochemistry. October 22-24, 2015, Lafayette, IN. Critical Zone Science, Sustainability, and Services in a Changing World. Purdue University.
278. Liu, J., J. L. Fortney, S. M. Techtmann, D. C. Joyner, and **T. C. Hazen**. Contributed. Microbial Community changes and Crude Oil Biodegradation and Microbial Community Changes in Deep Oceans. October 22-24, 2015, Lafayette, IN. Critical Zone Science, Sustainability, and Services in a Changing World. Purdue University.
279. Chen, C., G. Pan, W. Shi, F. Xu, S. M. Techtmann, S. M. Pfiffner, and **T. C. Hazen**. Contributed. How does clay flocculation of harmful algal blooms affect microbial community composition in water and sediment? October 22-24, 2015, Lafayette, IN. Critical Zone Science, Sustainability, and Services in a Changing World. Purdue University.
280. Woo, H. L. and **T. C. Hazen**. Contributed. Using high throughput sequencing methods to identify keystone bacterial species in recalcitrant terrestrial organic matter transformation. October 22-24, 2015, Lafayette, IN. Critical Zone Science, Sustainability, and Services in a Changing World. Purdue University.
281. Campa, M. F., S. Techtmann, M. L. Patterson, A. Garcia de Matos Amaral, R. Lamendella, C. Grant, and **T. C. Hazen**. Contributed. Environmental microbial community tolerance and adaptation to biocides use in hydraulic fracturing operations. October 22-24, 2015, Lafayette, IN. Critical Zone Science, Sustainability, and Services in a Changing World. Purdue University.
282. Adams, B. G., A. M. Rocha, C. Paradis, and **T. C. Hazen**. Contributed. Geochemical Response to Temporal Variations in Groundwater Head. October 22-24, 2015, Lafayette, IN. Critical Zone Science, Sustainability, and Services in a Changing World. Purdue University.
283. News Blog. Department of Energy Honors Rocha as Part of Series. October 7, 2015. Tennessee Today. http://tntoday.utk.edu/2015/10/07/department-energy-honors-rocha-part-womenenergy-series/.
284. News Blog. Hazen Addresses Wastewater Treatment Idea. September 25, 2015. Tennessee Today. http://tntoday.utk.edu/2015/09/25/hazen-addresses-wastewater-treatment-idea/.
285. News Blog. Yeast-Filled Fibers Could Treat Polluted Wastewater. September 24, 2015. Chemical and Engineering News. http://cen.acs.org/articles/93/web/2015/09/Yeast-Filled-Fibers-Treat-Polluted.html.
286. News Blog. Women @ Energy: Andrea M. Rocha. September 22, 2015. US DOE Office of Impact and Diversity. http://www.energy.gov/diversity/articles/women-energy-andrea-m-rocha.
287. **Hazen, T. C.** Plenary. Phenotypic and Genomic Heterogeneity among *Colwellia psychrerythraea* Strains from Distant Deep-Sea Basins. September 11, 2015. Florence, Italy. 3rd Conference of Phenotype MicroArrays, University of Florence.
288. **Hazen, T. C.** International Scientific Advisory. 3rd Conference of Phenotype MicroArrays. September 10-12, 2015. Florence, Italy. University of Florence.
289. **Hazen, T. C.** Section Chair. Genotype/Phenotype 3rd Conference of Phenotype MicroArrays. September 11, 2015. Florence, Italy. University of Florence.
290. News Blog. Postdoctoral Fellow Honored for Helping Advance Latinas in Tech Field. September 2, 2015. Tennessee Today. http://tntoday.utk.edu/2015/09/02/postdoctoral-fellow-honored-helping-advance-latinas-tech-field/
291. **Hazen, T. C.** Invited Seminar. Deepwater Horizon Oil Spill: Do Microbial Communities at other Deep Water Drilling Sites around the World Respond the Same? July 16, 2015. Nanjing, China. Nanjing University.
292. **Hazen, T. C.** Invited Seminar. Methane: the Good, the Bad and the Ugly. July 15, 2015. Shenyang, China. China Agriculture Institute.
293. **Hazen, T. C.** Invited Seminar. Methane: the Good, the Bad and the Ugly. July 13, 2015. Beijing, China. China Agriculture Institute.
294. **Hazen, T. C.** Plenary. Deepwater Horizon Oil Spill: Do Microbial Communities at other Deep Water Drilling Sites around the World Respond the Same? July 1, 2015. Chania, Crete, Greece. European Bioremediation Conference VI.

295. **Hazen, T. C.** Invited. Oil biodegradation in five deepwater basins around the world. June 19, 2015, Trondheim, Norway. SINTEF Sea Lab.
296. Liu*, J., J. L. Fortney, S. M. Techtmann, D. C. Joyner, **T. C. Hazen**. Contributed. Microbial Activity and Community Changes to Crude Oil in Deep Oceans. May 30, 2015, New Orleans, LA. American Society for Microbiology Annual Meeting.
297. Curtis*, D., P. Zhang, Z. He, A. M. Rocha, L. Wu, Q. Tu, Y. Qin, J. D. Van Nostrand, L. Wu, E. J. Alm, M. W. Fields, D. A. Elias, D. A. Stahl, **T. C. Hazen**, A. P. Arkin, P. D. Adams, and J. Zhou. Contributed. Changes induced in the subsurface microbial community by the nitrate gradient at a nuclear legacy site. May 30, 2015, New Orleans, LA. American Society for Microbiology Annual Meeting.
298. Johnston*, E. R., Z. Li, A. Harris, B. L. Turner, S. J. Wright, C. Pan, K. T. Konstantinidis, **T. C. Hazen**, and M. A. Mayes. Contributed. Predicting climate feedbacks: metabolic response of soil microbial communities to phosphorus and oxygen availability in tropical ecosystems. May 30, 2015, New Orleans, LA. American Society for Microbiology Annual Meeting.
299. Wu*, X., S. Jagadamma, **T. C. Hazen**, T. Northen, M. Fields, and R. Chakraborty. Contributed. Microbial Interactions with Native Natural Organic Matter at Contaminated Sites from Oak Ridge FRC. May 30, 2015, New Orleans, LA. American Society for Microbiology Annual Meeting.
300. Woo*, H., K. O'Dell, S. Techtmann, J. L Fortney, D. C Joyner and **T. C. Hazen**. Contributed. What happens to lignin in the ocean? Evidence of Lignin Transformation from Marine Microcosms. May 30, 2015, New Orleans, LA. American Society for Microbiology Annual Meeting.
301. Jagadamma*, S., C. J. Paradis, S. W. Olesen, A. M. Rocha, D. C. Joyner, J. L. Fortney, D. B. Watson, D. Elias, T. L. Mehlhorn, J. E. Earles, K. A. Lowe, P. Zhang, R. Chakraborty, M. Fields, M. W.W. Adams, J. Zhou, E. J. Alm, and **T. C. Hazen.** Contributed. The Memory Effect: Investigating the exposure-history dependence of electron donor biodegradation rates in groundwater. May 30, 2015, New Orleans, LA. American Society for Microbiology Annual Meeting.
302. Campa*, M. F., S. Techtmann, S. Brewer, A. Garcia de Matos Amarral, K. Manz, K. Carter, R. Lamendella, and **T. C. Hazen**. Contributed. Flowback Water: A Look into the Subsurface Microbial Community and Intrinsic Bioremediation. May 30, 2015, New Orleans, LA. American Society for Microbiology Annual Meeting.
303. Wang*, J., P. Zhang, L. Wu, Z. He, M. B. Smith, A. M. Rocha, C. S. Smillie, S. W. Oleson, C. J. Paradis, J. H. Campbell, J. L. Fortney, T. L. Mehlhorn, K. A. Lowe, J. E. Earles, J. Phillips, S. M. Techtmann, D. C. Joyner, S. P. Preheim, M. S. Sanders, J. Yang, M. A. Mueller, S. Brooks, D. B. Watson, M. W. W. Adams, W. A. Lancaster, F. L. Poole, E. Dubinsky, D. A. Elias, P. D. Adams, A. P. Arkin, M. W. Fields, E. J. Alm, T. C. Hazen, and J. Zhou. Contributed. Free-living and particle-attached bacterial communities of groundwater along multiple environmental gradients. May 30, 2015, New Orleans, LA. American Society for Microbiology Annual Meeting.
304. Rocha*, A. M., T. L. Mehlhorn, J. E. Earles, K. A. Lowe, D. M. Klingeman, D. B. Watson, D. C. Joyner, J. L. Fortney, S. Jagadamma, B. Detienne, B. Adams, J. J. Zhou, J. D. Van Nostrand, M. W. W. Adams, F. L. Poole, W. A. Lancaster, R. Chakraborty, E. J. Alm and **T. C. Hazen**. Contributed. The Impact of Groundwater Well Disinfection on Microbial Community Response and Regrowth. May 30, 2015, New Orleans, LA. American Society for Microbiology Annual Meeting.
305. Chen*, C., **T. C. Hazen**, G. Pan, W. Shi, and F. Xu. Contributed. Impact of Clay Flocculation of Algal Blooms on Pond Microbial Community. May 30, 2015, New Orleans, LA. American Society for Microbiology Annual Meeting.
306. Techtmann*, S., S. Stelling, D. Joyner, S. Uttukar, A. Harris, N. Alshibli, S. Brown, and **T. C. Hazen**. Contributed. Phenotypic and Genomic Heterogeneity among *Colwellia psychrerythraea* Strains from Distant Deep-Sea Basins. May 30, 2015, New Orleans, LA. American Society for Microbiology Annual Meeting.
307. Ulrich*, N., J. Wright, A. Rosenberger, **T. C. Hazen**, M. Campa, D. C. Joyner, and C. J. Grant. Contributed. A Temporal Analysis of Impacts of Unconventional Natural Gas Extraction on Microbial Communities in Headwater Stream Ecosystems in Northwestern Pennsylvania**.** May 30, 2015, New Orleans, LA. American Society for Microbiology Annual Meeting.
308. Wright*, J. R., D. Marabello, J. McDermott, W. Wang, T. Macbeth, M. F. Campa, D. C. Joyner, **T. C. Hazen**, and R. Lamendella. Contributed. Microbial Community Structure and Function Associated with Dichloromethane Contaminated Groundwater. May 30, 2015, New Orleans, LA. American Society for Microbiology Annual Meeting.
309. He, Z., P. Zhang, A. M. Rocha, L. Wu, Q. Tu, Y. Qin, D. Curtis, J. D. Van Nostrand, L. Wu, E. J. Alm, M. W. Fields, D. A. Elias, D. A. Stahl, **T. C. Hazen**, A. P. Arkin, P. D. Adams, and J. Zhou. Contributed. Microbial Functional Genes Predict Groundwater Contamination and Ecosystem Functioning. May 30, 2015, New Orleans, LA. American Society for Microbiology Annual Meeting.
310. Fortney, J. L., J. Liu, S. M. Techtmann, D. C. Joyner*, and **T. C. Hazen**. Contributed. Oil Biodegradation in Oxygen Minimum Zones. May 30, 2015, New Orleans, LA. American Society for Microbiology Annual Meeting.

311. Zhang*, P., A. Rocha, Z. He, J. Van Nostrand, E. Alm, **T. C. Hazen**, D. Elias, M. Fields, A. Arkin, P. Adams, and J. Zhou. Contributed. Impacts of Environmental Contaminants on Diversity of Groundwater Microbial Communities at a U(VI)-contaminated Aquifer. May 30, 2015, New Orleans, LA. American Society for Microbiology Annual Meeting.
312. Lamendella*, R., J. Wright, N. Weit, S. Rummel, **T. C. Hazen**, M. Fernanda Campa, D. C. Joyner, and C. Grant. Contributed. Microbial Community Structure of a Passive Abandoned Coal Mine Remediation System In Pennsylvania. May 30, 2015, New Orleans, LA. American Society for Microbiology Annual Meeting.
313. News Blog. Bacteria the newest tool in detecting environmental damage. May 28, 2015. ENVASS. http://www.envass.co.za/news/bacteria_the_newest_tool_in_detecting_environmental_damage/316
314. News Radio Blog. The Promise of Water Security. May 27, 2015. Southeast Green. http://www.southeastgreen.com/index.php/seg-features/speaking-of-green/season-5/13551-the-promise-of-water-security
315. News Blog. Hazen to Lead UT's Institute for a Secure and Sustainable Environment. May 26, 2015. ORNL News. http://web.ornl.gov/info/library/ornlnews/
316. News Blog. Hazen to Lead UT's Institute for a Secure and Sustainable Environment. May 26, 2015. USGov.info. http://usgov.info/category/science-and-technology/earth-science/
317. News Blog. Using Microbial Communities to assess Environmental Contamination. May 19, 2015. Terradaily. http://www.terradaily.com/reports/Using_microbial_communities_to_assess_environmental_contamination_999.html/
318. News Blog. Microbial communities can assess environmental contamination. May 18, 2015. BioPortfolio. http://www.bioportfolio.com/news/article/2337710/Microbial-communities-can-assess-environmental-contamination.html
319. News Blog. Hazen to Lead UT's Institute for a Secure and Sustainable Environment. May 18, 2015. Southeast Green. http://www.southeastgreen.com/index.php/news/tennessee/13470-hazen-to-lead-ut-s-institute-for-a-secure-and-sustainable-environment/
320. News Blog. Hazen to Lead UT's Institute for a Secure and Sustainable Environment. May 18, 2015. Knoxville, TN. Tennessee Today. http://tntoday.utk.edu/2015/05/18/hazen-to-lead-ut-institute-for-a-secure-and-sustainable-environment/
321. **Hazen, T. C.** Invited Seminar. Methane: the Good, the Bad and the Ugly. May 14, 2015. Nashville, TN. Nashville Engineering Alumni Reception.
322. News Blog. Using Microbial Communities to assess Environmental Contamination. May 14, 2015. NZ Health Tec. http://www.nzhealthtec.com/using-microbial-communities-to-assess-environmental-contamination/
323. News Blog. Bacteria detects presence of Pollutants, Contamination. May 13, 2015. American Laboratory. http://www.americanlaboratory.com/174149-Bacteria-Detects-Presence-of-Pollutants-Contamination/
324. News Blog. Bacteria the newest tool in detecting environmental damage. May 13, 2015. Yourwebapps. http://disc.yourwebapps.com/discussion.cgi?disc=198175;article=9185
325. News Blog. Using microbial communities to assess environmental contamination. May 13, 2015. Lab Manager. http://www.labmanager.com/news/2015/05/using-microbial-communities-to-assess-environmental-contamination?fw1pk=2#.VVSPVmGFnYY
326. News Blog. Microbes serve as markers for environmental contamination. May 12, 2015. AnchorFree. http://anchorfree.us/news/article.php?s=science&t=microbes-serve-as-markers-for-environmental-contamination
327. News Blog. Using microbial communities to assess environmental contamination. May 12, 2015. R&D Magazine. http://www.rdmag.com/news/2015/05/using-microbial-communities-assess-environmental-contamination
328. News Blog. Bakteri bias jadi alat deteksi polusi lingkungan. May 12, 2015. Antara News. http://www.antaranews.com/berita/496012/bakteri-bisa-jadi-alat-deteksi-polusi-lingkungan
329. News Blog. Bacteria the newest tool in detecting environmental damage. May 12, 2015. AZ News. http://az-neweer.com/bacteria-the-newest-tool-in-detecting-environmental-damage/
330. News Blog. Microbes serve as markers for environmental damage. May 12, 2015. Lastminutestuff. http://www.lastminutestuff.com/content/Microbes-serve-as-markers-for-environmental/2621472.html
331. News Blog. Bacterial communities can act as precise biosensors of environmental damage. May 12, 2015. Kalen2Utech. http://kalen2utech.com/bacterial-communities-can-act-as-precise-biosensors-of-environmental-damage/
332. News Blog. Microbes serve as markers for environmental damage. May 12, 2015. Weird4U.com. http://weird4u.com/2015/05/12/microbes-serve-as-markers-for-environmental-contamination/
333. News Blog. Bacterial communities can act as precise biosensors of environmental damage. May 12, 2015. Biology News Net. http://www.biologynews.net/archives/2015/05/12/bacterial_communities_can_act_as_precise_biosensors_of_environmental_damage.html

334. News Blog. Bacteria the newest tool in detecting environmental damage. May 12, 2015. Science World. http://www.scienceworldreport.com/articles/25409/20150512/bacteria-newest-tools-detect-environmental-damage.htm
335. News Blog. Using microbial communities to assess environmental contamination. May 12, 2015. PhysOrg. http://phys.org/news/2015-05-microbial-environmental-contamination.html
336. News Blog. Bacteria the newest tool in detecting environmental damage. May 12, 2015. ScienceDaily. http://www.sciencedaily.com/releases/2015/05/150512112445.htm
337. News Blog. Microbes serve as markers for environmental contamination. May 12, 2015. Science News. http://www.upi.com/Science_News/2015/05/12/Microbes-serve-as-markers-for-environmental-contamination/8041431450632/
338. News Blog. Using microbial communities to assess environmental contamination. May 12, 2015. LBNL Newscenter. http://newscenter.lbl.gov/2015/05/12/using-microbial-communities-to-assess-environmental-contamination/
339. News Blog. Bacteria the newest tool in detecting environmental damage. May 12, 2015. SciGuru. http://www.sciguru.org/newsitem/19046/bacteria-newest-tool-detecting-environmental-damage
340. News Blog. Bacteria the newest tool in detecting environmental damage. May 12, 2015. Tennessee Today. http://tntoday.utk.edu/2015/05/12/bacteria-newest-tool-detecting-environmental-damage/?&utm_source=tntoday&utm_medium=email&utm_campaign=2015-05-12.
341. News Blog. Bacteria the newest tool in detecting environmental damage. May 12, 2015. Eurekalert. http://www.eurekalert.org/pub_releases/2015-05/uota-btn051215.php.
342. News Blog. Bacterial communities serve as ready-made biosensors of environmental contaminants. May 12, 2015. mBioblog. http://mbioblog.asm.org/mbiosphere/2015/05/bacterial-communities-serve-as-ready-made-biosensors-of-environmental-contaminants.html/.
343. News Blog. Latinas at Tech Giants. May 12, 2015. Diversity News. http://blackengineer.com/artman2/publish/HISPANIC_ENGINEER_55/These-Women-Get-IT-Information-Technology.shtml
344. **Hazen, T. C.** Keynote. Methane: the Good, the Bad and the Ugly. April 28, 2015. Knoxville, TN. Annual meeting of the University of Tennessee Sigma Xi Chapter
345. **Hazen, T.** C. TV interview. Terry Hazen Discusses Gulf Recovery on WBIR. April 27, 2015. WBIR Knoxville.
346. Youngquist, E., S. Techtmann, and **T. C. Hazen**. Contributed. Genomic Diversity of *Pseudoaltermonas* species from Geographically Distant Marine Basins. April 13-15, 2015. Knoxville, TN. University of Tennessee Exhibition of Undergraduate Research and Creative Achievement (EUReCA).
347. Hagen, S., S. Techtmann, and **T. C. Hazen**. Contributed. Quantifying Extracellular Enzyme Activity In Deep-Sea Sediment From the Mediterranean Sea Through The Use of Fluorometric Assays. April 13-15, 2015. Knoxville, TN. University of Tennessee Exhibition of Undergraduate Research and Creative Achievement (EUReCA).
348. McBride, K. R. C. Chen, and **T. C. Hazen**. Contributed. Assessing Ecological Impact of Clay Flocculation Techniques by Measuring Microbial Community Structure. April 13-15, 2015. Knoxville, TN. University of Tennessee Exhibition of Undergraduate Research and Creative Achievement (EUReCA).
349. Brewer, S. S., M. F. Campa, S. M. Techtmann, J. L. Fortney, and **T. C. Hazen**. Contributed. Isolation and Characterization of Anaerobic Microbial Communities from Hydraulic Fracturing Fluids. April 13-15, 2015. Knoxville, TN. University of Tennessee Exhibition of Undergraduate Research and Creative Achievement (EUReCA).
350. Whitt, K., S. M. Techtmann, J. L. Fortney, D. C. Joyner, and **T. C. Hazen**. Contributed. Abundance and Diversity of *Thaumarcheaota* in Four Ocean Basins. April 13-15, 2015. Knoxville, TN. University of Tennessee Exhibition of Undergraduate Research and Creative Achievement (EUReCA).
351. Fitzgerald, K., S. M. Techtmann, J. L. Fortney, D. C. Joyner, and **T. C. Hazen**. Contributed. Diversity and Distribution of Archaeal amoA Genes in Geochemically Distinct Marine Basins. April 13-15, 2015. Knoxville, TN. University of Tennessee Exhibition of Undergraduate Research and Creative Achievement (EUReCA).
352. Detienne, B. L., A. M. Rocha, S. Pfiffner, S. Jagadamma, and **T. C. Hazen**. Contributed. Microbial Community Structure and Abundance in Uranium and Nitrate Contaminated Groundwater. April 13-15, 2015. Knoxville, TN. University of Tennessee Exhibition of Undergraduate Research and Creative Achievement (EUReCA).
353. Adams, B. G., A. M. Rocha, S. Jagadamma, C. Paradis, and **T. C. Hazen**. Contributed. Impact of Temporal Variations of Hydrology on Groundwater Geochemistry. April 13-15, 2015. Knoxville, TN. University of Tennessee Exhibition of Undergraduate Research and Creative Achievement (EUReCA).
354. Garcia de Matos Amaral, A., M. F. Campa, and **T. C. Hazen.** Contributed. Community Structure of Fracking Flowback water from Marcellus shale of Pennsylvania. April 13-15, 2015. Knoxville, TN. University of Tennessee Exhibition of Undergraduate Research and Creative Achievement (EUReCA).
355. MicroScope Annual Newsletter 2013-14. Newsletter. "The man of many research interests: **Terry Hazen**", University of Tennessee, Knoxville, TN http://micro.utk.edu/news/2013-14.pdf/

356. Techtmann*, S., S. Stelling, D. Joyner, S. Uttukar, A. Harris, N. Alshibli, S. Brown, and **T. C. Hazen**. Contributed. Phenotypic and Genomic Heterogeneity among *Colwellia psychrerythraea* Strains from Distant Deep-Sea Basins. March 28, 2015. Atlanta, GA. 2nd Annual Southeastern Biogeochemistry Symposium.
357. Paradis*, C., N. Mahmoudi, D. Driver, K. O'Dell, J. Fortney, S. Jagadamma, S. Schaeffer, and T. C. Hazen. Contributed. Soil Microbial Respiration and Community Structure in Response to Severe Drought and Precipitation Events. March 28, 2015. Atlanta, GA. 2nd Annual Southeastern Biogeochemistry Symposium.
358. Liu*, J., J. Fortney, S. Techtmann, D. Joyner, and **T. C. Hazen**. Contributed. Crude Oil Biodegradation and Microbial Community Changes in Deep Oceans. March 28, 2015. Atlanta, GA. 2nd Annual Southeastern Biogeochemistry Symposium.
359. Woo*, H., K. O'Dell, S. Techtmann, and **T. C. Hazen**. Contributed. What Happens to Lignin in the Ocean? Evidence of Bacterial Lignin Degradation in Marine Microcosms. March 28, 2015. Atlanta, GA. 2nd Annual Southeastern Biogeochemistry Symposium.
360. Harik*, A.-M., S. Techtmann, J. Fortney and **T. C. Hazen**. Contributed. Water Swap. March 28, 2015. Atlanta, GA. 2nd Annual Southeastern Biogeochemistry Symposium.
361. Hagen*, S. N. Mahmoudi, A. Steen, and **T. C. Hazen**. Contributed. Quantifying Extracellular Enzyme Activity in Deep-Sea Sediment from the Mediterranean Sea through the use of Fluorometric Assays. March 28, 2015. Atlanta, GA. 2nd Annual Southeastern Biogeochemistry Symposium.
362. Chen*, C., **T. C. Hazen**, G. Pan, W. Shi, and F. Xu. Contributed. Impact of Clay Flocculation of Algal Blooms on Pond Microbial Community. March 28, 2015. Atlanta, GA. 2nd Annual Southeastern Biogeochemistry Symposium.
363. Campa*, M. F., S. M. Techtmann, S. Brewer, A. Garcia de Matos Amaral, J. Wright, N. Ulrich, R. Lamendella, and **T. C. Hazen**. Contributed. Hydraulic Fracturing Flowback Water: A Look into the Subsurface Microbial Community and Intrinsic Bioremediation. March 28, 2015. Atlanta, GA. 2nd Annual Southeastern Biogeochemistry Symposium.
364. **Hazen, T. C.** Invited Seminar. Deepwater Horizon Oil Spill: Do Microbial Communities at other Deep Water Drilling Sites around the World Respond the Same? March 26, 2015. Atlanta, GA. Georgia Tech, School of Earth and Atmospheric Sciences & Biology Seminar. http://www.eas.gatech.edu/content/terry-hazen-university-tennessee-hostjen-glass
365. **Hazen, T. C.** Invited Seminar. Methane: the Good, the Bad and the Ugly. March 9, 2015. Knoxville, TN. Distinguished Lecture Series College of Engineering, University of Tennessee. Streaming: http://sf.ites.utk.edu/utk/Play/53a944a7c7a14546939918f867c282de1d (45 views on YouTube)
366. **Hazen, T. C.** Invited Seminar. "OMICS" – The Fantasy is Over: the need for multiple lines of evidence. March 2, 2015. Westminster, CO. RemTEC Summit.
367. Rocha, A. M., T. L. Mehlhorn, J. E. Earles, K. A. Lowe, D. M. Klingeman, D. B. Watson, D. C. Joyner, J. L. Fortney, S. Jagadamma, J. J. Zhou, J. D. Van Nostrand, M. W. W. Adams, F. L. Poole, W. A. Lancaster, R. Chakraborty, D. Elias, P. D. Adams, A. P. Arkin, E. J. Alm and **T. C. Hazen.** Invited Poster. Temporal Variation in Groundwater Geochemistry and Microbial Community Structure at Oak Ridge Field Site. February 23, 2015. Tyson's Corner, VA. DOE Genomic Sciences Contractor Annual Meeting.
368. Elias, D. A., A. J. King, K. L. Bailey, S. P. Preheim, M. S. Robeson II, T. R. Chowdhury, B. R. Crable, R. A. Hurt Jr., A. C. Somenahally, S. Techtmann, T. Mehlhorn, K. A. Lowe, A. M. Rocha, A. Zelaya, M. W. Fields, A. P. Arkin, J.-M. Chandonia, **T. C. Hazen**, E. J. Alm, J. Zhou, T. J. Phelps, C. C. Brandt, S. D. Brown, M. Podar, M. W. W. Adams, D. B. Watson, and P. D. Adams. Invited Poster. Groundwater-fed Bioreactors Show Distinct Colonization and Community-wide Response Dynamics to Perturbations. February 23, 2015. Tyson's Corner, VA. DOE Genomic Sciences Contractor Annual Meeting.
369. Chakraborty, R., A. Pettenato, X. Wu, S. Jagadamma, **T. C. Hazen**, M. Fields, T. Northen, S. Jenkins, W. A. Lancaster, M. W. W. Adams, A. P. Arkin, and P. D. Adams. Invited Poster. Microbial Interactions with Native Natural Organic Matter in Groundwater and Sediment from the Oak Ridge FRC. February 23, 2015. Tyson's Corner, VA. DOE Genomic Sciences Contractor Annual Meeting.
370. Brewer, S. S., M. F. Campa, A. G. Amaral, S. M. Techtmann, J. L. Fortney, K. Fitzgerald and **T. C. Hazen**. Invited. Isolation and Characterization of Anaerobic Microbial Communities from Hydraulic Fracturing Fluids. February 2015. Nashville, TN. Tennessee Experimental Learning Symposium (TELS)
371. Brewer S., Techtmann S. M., Mahmoudi N., Niang D., Pfiffner S., and **T. C. Hazen.** Invited. Co-extraction of DNA and PLFA from Soil Samples using Bligh and Dyer PLFA Extraction and Modified Miller DNA Extraction. February 2015. Nashville, TN. *Posters at the Tennessee Capitol.* http://ugresearch.utk.edu/activities/posters-at-the-capitol/posters-at-the-capitol-2015/
372. **Hazen, T. C.** Invited Seminar. Deepwater Horizon Oil Spill: Do Microbial Communities at other Deep Water Drilling Sites around the World Respond the Same? February 12, 2015. Mount Pleasant, MI. Central Michigan University.

373. **Hazen, T. C.** News Blog. Hazen Encourages UT-ORNL Internships. February 6, 2015. Knoxville, TN. http://www.engr.utk.edu/news/atcoe/atcoe_02_06_15.html
374. Gillman, S. Newspaper Interview. UT, ORNL: partners in science. January 30, 2015. Knoxville, TN. The Daily Beacon http://utdailybeacon.com/news/2015/jan/30/ut-ornl-partners-science/
375. **Hazen, T. C.** Invited Plenary Lecture. Harnessing metagenomics in oil-spill cleanup: lessons from the Deepwater Horizon spill. November 26, 2014. Ottawa, Canada. Genome Canada "Genomics: The Power and the Promise".
376. Driver, D. A., K. O'Dell, C. J. Paradis, N. Mahmoudi, J. L. Fortney, S. M. Schaeffer, and **T. C. Hazen**. Contributed. Soil Microbial Respiration and Biomass as a Function of Soil Moisture Content in a Lexington Silt Loam from West Tennessee. October 22, 2014. Vancouver, Canada. Geological Society of America Annual Meeting.
377. Paradis, C. J., S. Jagadamma, J. L. Fortney, T. Mehlhorn, J. C. Parker, D. B. Watson, L. D. McKay, and **T. C. Hazen**. Contributed. The Memory Effect: In situ electron donor biodegradation rates as a function of exposure history in a shallow groundwater system. October 19, 2014. Vancouver, Canada. Geological Society of America Annual Metting.
378. **Hazen, T. C.,** A. M. Rocha, M. Smith, C. Smillie, T. L. Mehlhorn, J. E. Earles, K. A. Lowe, J. Phillips, D. B. Watson, C. Paradis, K. Bailey, D. Joyner, J. L. Fortney, S. Pfiffner, J. J. Zhou, J. D. Van Nostrand, L. Wu, P. Zhang, Z. He, D. Curtis, D. Xu, D. Elias, M. Adams, F. Poole, R. Chakraborty, A. P. Arkin, E. Alm, and T. C. Hazen. Plenary Lecture. Microbial Community Structure Predicts Groundwater Geochemistry. October 7, 2014. Asilomar, CA. International Symposium of Subsurface Microbiology 2014 (ISSM 14).
379. Woo, H., S. Techtmann, J. L. Fortney, D. C. Joyner, and **T. C. Hazen**. Contributed. Investigating lignin degradation potential by microbial communities in the deep-ocean. October 7, 2014. Asilomar, CA. International Symposium of Subsurface Microbiology 2014 (ISSM 14).
380. ____2013 Research Annual Report. "Mitigating Oil Spills". October 2, 2014. https://utworks.tennessee.edu/research/comm/reports/fy2013_ore-annual-report.pdf
381. **Hazen, T. C.** Invited Webinar. "OMICS" – The Fantasy is Over: the need for multiple lines of evidence. September 16, 2014. Knoxville, TN. Microbial Insights http://www.microbe.com/index.php/General/resources-general.html.
382. Mahmoudi, M., M. Robeson, T. Porter, S. Pfiffner, S. Techtmann, J. L. Fortney, D. C. Joyner, and **T. C. Hazen**. Contributed. Sedimentary microbiomes in the Caspian Sea. August 24-29, 2014, Seoul, South Korea. International Symposium of Microbial Ecology (ISME 15).
383. Techtmann, S., K. Ayers, J. L. Fortney, D. C. Joyner, S. Pfiffner, and **T. C. Hazen**. Contributed. The structure and function of the eastern Mediterranean microbial community is strongly stratified by water mass. August 24-29, 2014, Seoul, South Korea. International Symposium of Microbial Ecology (ISME 15).
384. Woo, H., S. Techtmann, J. L. Fortney, D. C. Joyner, and **T. C. Hazen**. Contributed. Investigating lignin degradation potential by microbial communities in the deep-ocean. August 24-29, 2014, Seoul, South Korea. International Symposium of Microbial Ecology (ISME 15).
385. Chen*, C., **T. C. Hazen**, and S. Techtmann. Contributed. The response of microbial community structure to clay flocculation of harmful algae blooms. August 24-29, 2014, Seoul, South Korea. International Symposium of Microbial Ecology (ISME 15).
386. Liu, J., S. Techtmann, J. L. Fortney, D. C. Joyner, and **T. C. Hazen***. Contributed. Microbial respiration and community changes to crude oil in deep Eastern Mediterranean and Great Australian Bight. August 24-29, 2014, Seoul, South Korea. International Symposium of Microbial Ecology (ISME 15).
387. Rocha*, A., S. Pfiffner, K. Ayers, J. L. Fortney, S. Techtmann, D. C. Joyner, J. Van Nostrand, P. Zhang, A. Lancaster, J. Zhou, D. Watson, M. Adams, R. Chakraborty, A. Arkin, E. Alm, and **T. C. Hazen**. Contributed. Phospholipid fatty acid analysis for characterization of a microbial community structure across a geochemically diverse watershed. August 24-29, 2014, Seoul, South Korea. International Symposium of Microbial Ecology (ISME 15).
388. Zhang, P., Z. He*, J. Van Nostrand, L. Wu, **T. C. Hazen**, D. Elias, M. Fields, A. Arkin, P. Adams, and J. Zhou. Contributed. Impacts of environmental contaminants on functional diversity of groundwater microbial communities at a U(VI)-contaminated aquifer. August 24-29, 2014, Seoul, South Korea. International Symposium of Microbial Ecology (ISME 15).
389. Hemme*, C. L., Q. Tu, Z. Shi, Y. Qin, W. Gao, Y. Deng, J. D. Van Nostrand, L. Wu, Z. He, S. J. Green, L. Rishishwar, O. Prakash, P. S. G. Chain, S. Tringe, M. W. Fields, R. Chakraborty, A. M. Deutchbauer, I. K. Jordan, J. E. Kostka, E. M. Rubin, J. M. Tiedje, A. P. Arkin, **T. C. Hazen**, and J. Zhou. Invited. Metagenomic Analysis of Pristine and Stressed Groundwater Communities. August 19-20, 2014, Berkeley, CA. ENIGMA SFA Annual Retreat.
390. Deng*, Y., P. Zhang, Z. He, Z. Shi, Y. Qin, J. D. Van Nostrand, L. Wu, M. Fields, C. W. Schadt, D. A. Elias, D. A. Stahl, **T. C. Hazen**, A. P. Arkin, and J. Zhou. Invited. Network dynamics of groundwater microbial community succession during uranium bioremediation and new network analysis approaches. August 19-20, 2014, Berkeley, CA. ENIGMA SFA Annual Retreat.

391. He*, Z., P. Zhang, A. M. Rocha, L. Wu, Q. Tu, Y. Qin, D. Curtis, J. D. Van Nostrand, L. Wu, E. Alm, M. Fields, D. A. Elias, D. A. Stahl, **T. C. Hazen**, A. P. Arkin, P. Adams, and J. Zhou. Invited. Functional genes of groundwater microbial communities predict contamination and ecosystem functioning. August 19-20, 2014, Berkeley, CA. ENIGMA SFA Annual Retreat.
392. Zhang*, P., Z. He, J. Van Nostrand, L. Wu, **T. C. Hazen**, D. Elias, M. Fields, A. Arkin, P. Adams, and J. Zhou. Invited. Impacts of environmental contaminants on functional diversity of groundwater microbial communities at a U(VI)-contaminated aquifer. August 19-20, 2014, Berkeley, CA. ENIGMA SFA Annual Retreat.
393. Bailey, K. L., B. R. Crable*, R. A. Hurt, M. S. Robeson, II1, S. Techtmann, D. A. Stahl, **T. C. Hazen**, A. P. Arkin, J. Chandonia, T. Northen, M. W. Fields, E. J. Alm, J. Zhou, M. W. W. Adams, and D. A. Elias. Invited. Reproducibility of a Groundwater Microbial Community in Replicate Bioreactors. August 19-20, 2014, Berkeley, CA. ENIGMA SFA Annual Retreat.
394. Paradis*, C. J., S. Jagadamma, J. L. Fortney, T. Mehlhorn, D. B. Watson, L. D. McKay, and **T. C. Hazen**. Invited. Hydrogeologic Characterization of a Groundwater System for Investigating Ethanol Biodegradation Rates as a Function Exposure History. August 19-20, 2014, Berkeley, CA. ENIGMA SFA Annual Retreat.
395. Rocha*, A. M., T. L. Mehlhorn, J. E. Earles, K. A. Lowe, J. Phillips, D. B. Watson, C. Paradis, K. Bailey, D. C. Joyner, J. L. Fortney, S. Pfiffner, J. J. Zhou, J. D. Van Nostrand, L. Wu, P. Zhang, Z. He, D. Curtis, D. Xu, D. Elias, M. Adams, A. Lancaster, R. Chakraborty, A. P. Arkin, E. Alm and **T. C. Hazen**. Invited. Temporal Variation in Groundwater Geochemistry has a Dominant Effect on Microbial Community Structure. August 19-20, 2014, Berkeley, CA. ENIGMA SFA Annual Retreat.
396. Zeng*, L., R. Csencsits, C. Petzold, **T. C. Hazen**, F. Poole, W.A. Lancaster, M. Adams, M. Fields, D. Stahl, H. Nikaido, B. Jap, and P. Walian. Invited. Membrane-based Mechanisms in Stress Response and Community Interactions. August 19-20, 2014, Berkeley, CA. ENIGMA SFA Annual Retreat.
397. **Hazen, T. C.** Invited. Ecosystem Metabolomics, System Biology Engineering – The whole is greater than the sum of its parts. July 1, 2014. Knoxville, TN. UT-ORNL Brainstorming Session on the Future Direction of the Joint Institute for Biological Sciences (JIBS).
398. **Hazen, T. C.** Invited. Deepwater Horizon Oil Spill: Deepwater oil-degrading bacterial communities. June 18, 2014. Trondheim, Norway. Norwegian University of Science and Technology (NTNU)
399. **Hazen, T. C.** Invited. Deepwater Horizon Oil Spill: Deepwater oil-degrading bacterial communities. June 17, 2014. Trondheim, Norway. SINTEFF
400. **Hazen, T. C.** Invited. Deepwater Horizon Oil Spill: How resilient is the Gulf of Mexico? June 11, 2014. La Jolla, CA. Scripps Institution of Oceanography.
401. Bailey, R. A. Hurt, T. R. Chowdhury, M. S. Robeson II, S. Techtmann, T. Mehlhorn, A. Zelaya, M. W. Fields, A. P. Arkin, S. D. Brown, M. Podar, D. A. Stahl, **T. C. Hazen**, J. Zhou, T. J. Phelps, M. W. W. Adams, D. B. Watson, and D. A. Elias. Reproducibility of a Groundwater Microbial Community in Replicate Bioreactors. June 2014. Goldschmidt, Sacramento CA.
402. Handley*, K. M., O. U. Mason, **T. C. Hazen**, J. Gilbert, and J. Jansson. Contributed. Genomic Insights into Uncultivated Microbial Communities Associated with Spatially Distinct Oil Polluted Marine Sediments. May 18, 2014, Boston, MA. American Society for Microbiology Annual Meeting.
403. Pettenato*, A., M. Schicklberger, J. Ray, A. M. Deutschbauer, **T. C. Hazen**, A. P. Arkin, and R. Chakraborty. Contributed. Nitrate-Contaminated Groundwater at Oakridge FRC. May 18, 2014, Boston, MA. American Society for Microbiology Annual Meeting.
404. Liu*, J., S. Techtmann, J. Fortney, D. Joyner, and **T. C. Hazen.** Contributed. Oil-Induced Changes in the Structure and Function of the Eastern Mediterranean Sea Microbial Community. May 18, 2014, Boston, MA. American Society for Microbiology Annual Meeting.
405. Techtmann*, S. M., K. Ayers, J. L. Fortney, D. C. Joyner, S. M. Pfiffner, and **T. C. Hazen**. Contributed. The Eastern Mediterranean Microbial Community is Strongly Stratified by Water Mass. May 18, 2014, Boston, MA. American Society for Microbiology Annual Meeting.
406. Woo*, H. L., S. M. Techtmann, J. L. Fortney, D. C. Joyner, and **T. C. Hazen**. Contributed. Investigating Lignin Degradation Potential in the Hypersaline Eastern Mediterranean Deep-Sea Basin. May 18, 2014, Boston, MA. American Society for Microbiology Annual Meeting.
407. Song*, R., A. Zhou, Z. He, J. D. Wall, A. P. Arkin, T. C. Hazen, and J. Zhou. Contributed. Evolution and Adaptation of *Desulfovibrio vulgaris* Hildenborough to Elevated Temperature: Fitness and Trade-Offs. May 18, 2014, Boston, MA. American Society for Microbiology Annual Meeting.
408. Zhang*, P., Z. He, J. D. Van Nostrand, L. Wu, D. Curtis, **T. C. Hazen**, D. E. Elias, M. W. Fields, A. P. Arkin, P. D. Adams, and J. Zhou. Contributed. Impacts of Environmental Contaminants on Functional Diversity of Groundwater Microbial Communities at a U(VI)-Contaminated Aquifer. May 18, 2014, Boston, MA. American Society for Microbiology Annual Meeting.

409. Curtis*, D., P. Zhang, J. D. Van Nostrand, A. M. Rocha, **T. C. Hazen**, and J. Zhou. Contributed. Reduction in U(VI) Concentration Influences the Subsurface Microbial Community during the Titration of Highly Acidic Sediments. May 18, 2014, Boston, MA. American Society for Microbiology Annual Meeting.
410. Voordeckers*, J. W., P. Zhang, Z. Shi, Y. Deng, J. D. Van Nostrand, L. Wu, Z. He, **T. C. Hazen**, D. A. Elias, M. M. Fields, A. P. Arkin, P. D. Adams, and J. Zhou. Contributed. Effects of Uranium Contamination on the Metal Homeostasis Genes of Groundwater Microbial Communities. May 18, 2014, Boston, MA. American Society for Microbiology Annual Meeting.
411. Hemme*, C. L., S. J. Green, L. Rishishwar, O. Prakash, R. Chakraborty, A. M. Deutschbauer, J. D. Van Nostrand, L. Wu, Z. He, I. Jordan, **T. C. Hazen**, A. P. Arkin, J. E. Kostka, and J. Zhou. Contributed. Lateral Gene Transfer and Gene Duplication Contribute to Overabundance of Geochemical Resistance Genes in Uranium-Contaminated Groundwater Communities. May 18, 2014, Boston, MA. American Society for Microbiology Annual Meeting.
412. Rajan*, S. S., N. Flournoy, M. J. Beazley, R. J. Martinez, **T. C. Hazen**, and P. A. Sobecky. Contributed. Application on Marine Bacterial Populations. May 18, 2014, Boston, MA. American Society for Microbiology Annual Meeting.
413. Trexler*, R., C. Solomon, C. Brislawn, E. McClure, A. Grube, **T. C. Hazen**, M. Keddache, C. Grant, and R. Lamendella. Contributed. The Response of Freshwater Aquatic Microbial Communities to Marcellus Shale Natural Gas Extraction. May 18, 2014, Boston, MA. American Society for Microbiology Annual Meeting.
414. Rocha*, A. M., C. Smillie, T. L. Mehlhorn, J. E. Earles, K. A. Lowe, J. Phillips, D. B. Watson, C. Paradis, K. Bailey, D. Joyner, J. L. Fortney, S. Pfiffner, J. J. Zhou, J. D. Van Nostrand, L. Wu, P. Zhang, D. Curtis, D. Xu, D. Elias, M. W. Adams, A. Lancaster, R. Chakraborty, A. P. Arkin, E. J. Alm, and **T. C. Hazen**. Contributed. Temporal Variation in Groundwater Geochemistry Has a Dominant Effect on Microbial Community Structure at the Oak Ridge Field Research Site. May 18, 2014, Boston, MA. American Society for Microbiology Annual Meeting.
415. Mahmoudi*, N., M. S. Robeson, S. M. Techtmann, S. M. Pfiffner, S. C. Stelling, J. L. Fortney, D. C. Joyner, and **T. C. Hazen**. Contributed. Diversity and Function of Microbial Communities in the Caspian Sea. May 18, 2014, Boston, MA. American Society for Microbiology Annual Meeting.
416. **Hazen, T. C.** Invited. Omics and Geochemistry: the ENIGMA 100-Well Survey. May 5-7, 2014, Bolger Center, Potomac, MD. TES/SBR Joint Investigators Meeting.
417. Alshbli*, N., S. M. Techtmann, Y. M. Piceno, L. M. Tom, G. L. Andersen, and **T. C. Hazen.** Contributed. 16S rRNA Microarray Analysis of Microbial Communities in Hydrocarbon-Containing Deep-Sea Environments. April 16, 2014. Knoxville, TN. University of Tennessee Exhibition of Undergraduate Research and Creative Achievement (EUReCA).
418. O'Dell*, K., H. Woo, and **T. C. Hazen**. Contributed. Lignin degrading bacteria from the Mediterranean Sea. April 16, 2014. Knoxville, TN. University of Tennessee Exhibition of Undergraduate Research and Creative Achievement (EUReCA).
419. Stelling*, S., S. Techtmann, and **T. C. Hazen**. Contributed. Comparison of oil degrading Bacteria in the Gulf of Mexico and Eastern Mediterranean Sea. April 16, 2014. Knoxville, TN. University of Tennessee Exhibition of Undergraduate Research and Creative Achievement (EUReCA).
420. **Hazen, T. C.** Invited. How many punches can Mother Nature take in the Gulf of Mexico: Focus on Deepwater Horizon Oil Spill & Science and the Media. March 13, 2014. Knoxville, TN. Mic/Nite University of Tennessee. (56 views on YouTube)
421. **Hazen, T. C.** Keynote. ENIGMA at ORNL. March 4, 2014, Raleigh, NC. Fourth Biennial Southeastern In Situ Soil and Groundwater Remediation Conference 2014.
422. Jansson*, J. K., J. Kimbrel, N. Ballor, H. Woo, T. Ruegg, **T. C. Hazen**, M. P. Thelen, B. A. Simmons, S. W. Singer. Invited. Halophilic Communities as a Source for Novel Lignocellulolytic Enzymes. February 10-12, 2014. Arlington, VA. Genomics Sciences Program Contractor-Grantee Meeting.
423. Rocha*, A. M., M. Smith, C. Smillie, J. L. Fortney, S. M. Techtmann, D. C. Joyner, T. L. Mehlhorn, J. E. Earles, K. A. Lowe, J. Phillips, D. B. Watson, J. H. Campbell, S. Pfiffner, K. Ayers, C. Paradis, J. D. Van Nostrand, L. Wu, P. Zhang, Z. He, J. Zhou, M. W. W. Adams, A. Lancaster, P. D. Adams, A. P. Arkin, E. J. Alm, and **T. C. Hazen.** Invited. Microbial Community Structure Predicts Groundwater Geochemistry. February 10-12, 2014. Arlington, VA. Genomics Sciences Program Contractor-Grantee Meeting.
424. Yilmaz*, S., M. Smith, E. J. Alm, D. A. Elias, **T. C. Hazen**, A. P. Arkin, A. K. Singh, and P. D. Adams. Invited. Single Cell Genomics Applications in ENIGMA. February 10-12, 2014. Arlington, VA. Genomics Sciences Program Contractor-Grantee Meeting.
425. Elias* D. A., M. W. W. Adams, R. Chakraborty, M. W. Fields, **T. C. Hazen**, J. Zhou, T. Northern, N. Baliga, J.-M. Chandonia, A. P. Arkin, and P. D. Adams. Invited. Natural and Synthetic Ecology in ENIGMA: Determining the links between Microbial Community Structure and Function**.** February 10-12, 2014. Arlington, VA. Genomics Sciences Program Contractor-Grantee Meeting.

426. **Hazen, T. C.** Invited. How many punches can Mother Nature take in the Gulf of Mexico: Focus on Deepwater Horizon Oil Spill & Science. January 24, 2014. Oak Ridge, TN. ORNL lecture to Webb School from Bell Buckle, TN
427. **Hazen, T. C.** Invited Keynote. Comparing and Contrasting Petroleum Degrading Microbial Communities in Deep-Sea Environments. January 16, 2014. Al Hammamet, Tunisia. MedRem Conference.
428. ------. Top Thirteen "In the News" Stories for 2013. December 18, 2013. Knoxville, TN. http://tntoday.utk.edu/2013/12/18/top-thirteen-news-stories-2013/
429. ------. ORNL's Keller, Babu, Hazen elected AAAS fellows. December 2, 2013, Oak Ridge, TN. http://oakridgetoday.com/2013/11/26/ornls-keller-babu-hazen-elected-aaas-fellows/
430. Hienz, W. Four Faculty Named AAAS Fellows. November 25, 2013, Knoxville, TN. Tennessee Today. http://tntoday.utk.edu/2013/11/25/four-faculty-named-aaas-fellows/
431. **Hazen, T. C.** Invited. Systems Biology Approach to an Ecological Disaster: Deepwater Horizon Oil Spill. November 25, 2013, Knoxville, TN. University of Tennessee Micro 310.
432. **Hazen, T. C.** Invited. Microbial community structure predicts groundwater geochemistry at Oak Ridge contaminated and uncontaminated sites. November 18, 2013, Gatlinburg, TN. China-US Joint Symposium.
433. **Hazen, T. C.** Invited. Systems Biology Approach to an Ecological Disaster: Deepwater Horizon Oil Spill. November 14, 2013, Tampa, FL. Clean Gulf 2013.
434. **Hazen, T. C.** Invited. SuperChip: a grand challenge for UTK/ORNL. September 27, 2013, Knoxville, TN. UTK Alumni Board.
435. Rocha*, A. M., M. Smith, C. Smillie, J. L. Fortney, S. M. Techtmann, D. C. Joyner, T. L. Mehlhorn, J. E. Earles, K. A. Lowe, D. B. Watson, J. H. Campbell, E. Alm, A. P. Arkin, and **T. C. Hazen**. Contributed. Global Survey of the Department of Energy's Oak Ridge Field Research Site. July 18, 2013, Oak Ridge, TN. 1st Annual Postdoc Research Symposium, Oak Ridge National Laboratory
436. Bailey*, K. L., J. G. Moberly, T. J. Phelps, A. M. Rocha, H. Woo, M. Podar, S. D. Brown, Z. K. Yang, M. M. Drake, **T. C. Hazen**, A. P. Arkin, A. V. Palumbo, and D. A. Elias. Contributed. Transcriptomic and Proteomic Analysis of *Geobacter sulfurreducens* PCA and *Desulfovibrio vulgaris* Hildenborough Co-cultures. July 18, 2013, Oak Ridge, TN. 1st Annual Postdoc Research Symposium, Oak Ridge National Laboratory
437. News Magazine. C&EN After the deepwater horizon disaster. June 11, 2013. http://www.utk.edu/tntoday/2013/06/11/cen-deepwater-horizon-disaster/
438. Techtmann*, S., **T. C. Hazen,** and R. Prince. Invited Session Chairs. Marine Oil Spills. June 10-13, 2013, Jacksonville, FL. *Second International Symposium on Bioremediation and Sustainable Environmental Technologies.*
439. Techtmann*, S., J. Fortney, A. Rocha, D. Joyner, and **T. C. Hazen**. Invited. Hydrocarbon-Degrading Bacteria in the Warm Oligotrophic Deep Eastern Mediterranean. June 10-13, 2013, Jacksonville, FL. *Second International Symposium on Bioremediation and Sustainable Environmental Technologies.*
440. Kemsley, J. News Magazine. After The Deepwater Horizon Disaster. June 3, 2013. Chemical and Engineering News. http://cen.acs.org/articles/91/i22/Deepwater-Horizon-Disaster.html.
441. **Hazen, T. C.** Invited. The Deepwater Horizon Oil Spill: A Systems Biology Approach to an Ecological Disaster. June 6, 2013, Hobart, Tasmania, Australia. CSIRO.
442. **Hazen, T. C.** Invited. The Deepwater Horizon Oil Spill: A Systems Biology Approach to an Ecological Disaster. June 5, 2013, Sydney, Australia. CSIRO.
443. **Hazen, T. C.** Invited. The Deepwater Horizon Oil Spill: A Systems Biology Approach to an Ecological Disaster. June 3, 2013, Harbin, China. Harbin Institute of Technology.
444. **Hazen, T. C.** Invited Keynote. The Deepwater Horizon Oil Spill: A Systems Biology Approach to Oil Contaminated Beaches, Marshes, and Sediment. June 1, 2013, Nanjing, China. Institute of Soil Science, Chinese Academy of Sciences, China-US Ecopartnership "Frontiers in Environmental Research".
445. **Hazen, T. C.** Invited. A Systems Biology Approach to Biotransformation of Heavy Metals and Radionuclides in Groundwater. May 30, 2013, Nanjing, China. Nanjing University, China-US Ecopartnership for Environmental Sustainability.
446. **Hazen, T. C.** Invited. The Deepwater Horizon Oil Spill: A Systems Biology Approach to Oil Contaminated Beaches, Marshes, and Sediment. May 27, 2013, Shenyang, China. China-US Ecopartnership for Environmental Sustainability.
447. **Hazen, T. C.** Invited Keynote. The Deepwater Horizon Oil Spill: A Systems Biology Approach to an Ecological Disaster. May 24, 2013, Beijing, China. China-US Ecopartnership for Environmental Sustainability.
448. Zhou*, J., Y. Deng, P. Zhang, K. Xue, J. D. Van Nostrand, Y. Yang, Z. He, D. A. Stahl, **T. C. Hazen**, J. M. Tiedje, and A. P. Arkin. Contributed. Stochasticity, Succession and Environmental Perturbations in Fluidic Ecosystems. May 19, 2013, Denver, CO. American Society for Microbiology Annual Meeting.

449. Zhang*, P., R. Chakraborty, J. Van Nostrand, Z. He, D. Curtis, Y. Deng, **T. C. Hazen**, A. Arkin, and J. Zhou. Contributed. Diversity of Microbial Functional Communities during Long-term Cr(VI) Immobilization Stimulated with a Slow-release Substrate in the Hanford Aquifer. May 19, 2013, Denver, CO. American Society for Microbiology Annual Meeting.
450. Somenahally*, A. C., J. J. Mosher, R. A. Hurt, Jr., T. J. Phelps, S. D. Brown, M. Podar, A. V. Palumbo, **T. C. Hazen**, A. P. Arkin, and D. A. Elias. Contributed. Chromium as a Geochemical Determinant of Microbial Community Structure and Function. May 19, 2013, Denver, CO. American Society for Microbiology Annual Meeting.
451. Rocha*, A. M., J. L. Fortney, S. M. Techtmann, D. C. Joyner, T. L. Mehlhorn, J. Earles, K. A. Lowe, D. B. Watson, J. H. Campbell, E. Alm, M. Smith, A. P. Arkin, and **T. C. Hazen**. Contributed. Geochemical diversity and microbial-environmental associations of uranium-contaminated groundwater at Oak Ridge field research sites. May 19, 2013, Denver, CO. American Society for Microbiology Annual Meeting.
452. Bailey*, K. L., J. G. Moberly, T. J. Phelps, M. Podar, S. D. Brown, Z. K. Yang, M. M. Drake, **T. C. Hazen**, A. P. Arkin, A. V. Palumbo, and D. A. Elias. Contributed. Transcriptomic and Proteomic Analysis of *Geobacter sulfurreducens* PCA and *Desulfovibrio vulgaris* Hildenborough Co-cultures. May 19, 2013, Denver, CO. American Society for Microbiology Annual Meeting.
453. Hemme*, C. L., Q. Tu, Z. Shi, Y. Qin, J. D. Van Nostrand, L. Wu, Z. He, M. W. Fields, **T. C. Hazen**, J. M. Tiedje, and J. Zhou. Contributed. Metagenomic Analysis of Pristine Groundwater Suggests Robust Community Capable of Efficient Geochemical Cycling. May 19, 2013, Denver, CO. American Society for Microbiology Annual Meeting.
454. Yilmaz*, S., Y. K. Light, R. J. Meagher, **T. C. Hazen**, A. P. Arkin, and A. K. Singh. Contributed. Single-cell Analysis Platforms for Uncultivable Microorganisms. May 19, 2013, Denver, CO. American Society for Microbiology Annual Meeting.
455. Techtmann*, S. M, J. L. Fortney, D. C. Joyner, A. M. Rocha, T. D. Linley, and **T. C. Hazen**. Contributed. Hydrocarbon Degrading Bacteria in the Warm Oligotrophic Deep Eastern Mediterranean. May 19, 2013, Denver, CO. American Society for Microbiology Annual Meeting.
456. Huang*, J., A. Pettenato, M. Schicklberger, A. M. Deutschbauer, A. M. Rocha, D. B. Watson, **T. C. Hazen**, A. P. Arkin, and R. Chakraborty. Contributed. Physiology of Nitrate-reducing Anaerobes Isolated from Background And Nitrate-contaminated Groundwater At Oakridge FRC. May 19, 2013, Denver, CO. American Society for Microbiology Annual Meeting.
457. Bowen De Leon*, D. B., B. D. Ramsay, D. R. Newcomer, B. Faybishenko, **T. C. Hazen**, and M. W. Fields. Contributed. Injection of Nitrate as a Competing Electron Acceptor during Stimulation for Cr(VI) Reduction Alters the Microbial Population in Groundwater and Surrogate Sediments. May 19, 2013, Denver, CO. American Society for Microbiology Annual Meeting.
458. Newspaper. UT experts: BP oil spill gone from deep ocean, but remains in marshes. April 29, 2013. Knoxville Sentinel. http://www.knoxnews.com/news/2013/apr/28/ut-experts-bp-oil-spill-gone-from-deep-ocean-but/
459. News Blog. Gulf of Mexico Has Greater-Than-Believed Ability to Self-Cleanse Oil Spills. April 12, 2013. VibesForum. http://www.gatheringofthevibes.com/forum/topic/15664-gulf-of-mexico-has-greater-than-believed-ability-to-self-cleanse-oil-spills/
460. News Blog. Gulf of Mexico can 'self-deep-clean'. April 11, 2013. Bangla71.com. http://en.bangla71.com/bdnews/3876
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496. **Hazen, T. C.** Invited. The Deepwater Horizon Oil Spill: A Systems Biology Approach to an Ecological Disaster. April 14, 2013, New Orleans, LA. ACS annual meeting
497. **Hazen, T. C.** News Blog. Big Idea: Professor Develops 'SuperChip' to Speed Up Lab Results. March 15, 2013. http://www.utk.edu/tntoday/2013/03/15/big-idea-superchip/
498. Techtmann*, S., and **T.C. Hazen.** Invited. Can Mother Nature Take a Punch? The Science of the Big Gulf Oil Spill. March 5, 2013, Knoxville, TN. Harden Valley Academy.
499. **Hazen, T. C.** Invited. A Systems Biology Approach to Understanding Metal/Radionuclide Contaminated Sites. March 4, 2013, Denver, CO. RemTEC annual meeting.
500. **Hazen, T. C.** Invited. Omics reveals microbial community response to Macondo Oil Deep Plume. January 21, 2013, New Orleans, LA. Gulf of Mexico Oil Spill and Ecosystem Science Conference http://gulfofmexicoconference.org.
501. **Hazen, T. C.** Invited. The Deepwater Horizon Oil Spill: A Systems Biology Approach to an Ecological Disaster. January 18, 2013, Clemson, SC. Clemson University.
502. **Hazen, T. C.** Invited. The Deepwater Horizon Oil Spill: A Systems Biology Approach to an Ecological Disaster. December 15, 2012, Washington, DC. Naval Research Laboratory.
503. **Hazen, T. C.** Invited. The Deepwater Horizon Oil Spill: A Systems Biology Approach to an Ecological Disaster. December 3, 2012, San Francisco, CA. AGU fall meeting.
504. **Hazen, T. C.** Invited. The Deepwater Horizon Oil Spill: A Systems Biology Approach to an Ecological Disaster. November 12, 2012, Long Beach, CA. SETAC Deepwater Horizon/MC252 Special Symposium
505. **Hazen, T. C.** Invited. Science and the Media: perspectives for the Scientist. November 10, 2012, Winston-Salem, NC. Wake Forest University, Perspectives in Biology Symposium.
506. **Hazen, T. C.** Invited. The Deepwater Horizon Oil Spill: A Systems Biology Approach to an Ecological Disaster. November 9, 2012, Winston-Salem, NC. Wake Forest University, Perspectives in Biology Symposium.
507. **Hazen, T. C.** Invited. Dispersants and Oil, What We Learned from the Deepwater Horizon Disaster. October 23, 2012, Knoxville, TN. University of Tennessee, Earth and Planetary Sciences Seminar.
508. **Hazen, T. C.** Invited. Dispersants and Oil, What We Learned from the Deepwater Horizon Disaster. October 2, 2012, Houston, TX. Rice University.
509. **Hazen, T. C.** Invited. A Systems Biology Approach to the Deepwater Horizon Oil Spill, the 2nd largest marine oil spill in the world. September 21, 2012, Changsha, China. South Central China University.
510. **Hazen, T. C.** Invited. The Deepwater Horizon Oil Spill: A Systems Biology Approach to an Ecological Disaster. September 19, 2012, Shenyang, China. Key Lab on Pollution Ecology & Environmental Engineering, Institute of Applied Ecology, Chinese Academy of Sciences.
511. **Hazen, T. C.** Invited. The Deepwater Horizon Oil Spill: A Systems Biology Approach to an Ecological Disaster. September 17-19, 2012, Shenyang, China. The 2012 China-US Joint Symposium "Land Use, Ecosystem Services, and Sustainable Development"
512. **Hazen, T. C.** Invited. Deepwater Horizon Oil Spill: Ecological Disaster, Engineering Disaster, Science of Opportunity!!! September 13, 2012. University of Tennessee, College of Engineering, Board of Advisors.
513. **Hazen, T. C.** Invited. Cover: Environmental Microbiology 14, Issue 9, September 2012.
514. **Hazen, T**. C. Invited. A Systems Biology Approach to the Deepwater Horizon Oil Spill. August 22, 2012, Aberdeen, UK. University of Aberdeen, OceanLab.
515. DeAngelis*, K., C. Dylan, S. Blake, **T. C. Hazen**, and S. Whendee. Contributed. Shifting dynamics of bacteria and fungi during litter decomposition in wet tropical forest soils**.** August 20-24, 2012, Copenhagen, Denmark. International Symposium of Microbial Ecology (ISME 14).
516. Piceno*, Y., L. Tom, F. Reid, S. Borglin, J. Fortney, D. Joyner, A. Pettenato, **T. C. Hazen**, C. Spier, W. Stringfellow, J. Wong, and G. Andersen. Contributed. Microbial community structure differences associated with elevated hydrocarbon concentrations in sediment near and far from the Deepwater Horizon MC-252 wellhead. August 20-24, 2012, Copenhagen, Denmark. International Symposium of Microbial Ecology (ISME 14).
517. De Leon*, K. B., B. D. Ramsay, D. R. Newcomer, B. Faybishenko, **T. C. Hazen**, and M. W. Fields. Contributed. Microbial population dynamics in groundwater and surrogate sediments during HRC® biostimulation for Cr(VI)-reduction. August 20-24, 2012, Copenhagen, Denmark. International Symposium of Microbial Ecology (ISME 14).

518. Goodheart*, D., **T. C. Hazen**, and M. K. Firestone. Contributed. Deconstructing the Microbial Community Degrading Plant Material in a Wet, Tropical Forest. August 20-24, 2012, Copenhagen, Denmark. International Symposium of Microbial Ecology (ISME 14).
519. **Hazen, T. C.** Invited Convener. Metagenomics and the Environment. August 13, 2012, Washington, DC. Society of Industrial Microbiology Annual Meeting.
520. Lamendella, R., S. E. Borglin, R. Chakraborty, **T. C. Hazen**, and J. K. Jansson. Invited. Microbial Community Dynamics on an oil contaminated beach following the Deepwater Horizon Oil Spill. August 13, 2012, Washington, DC. Society of Industrial Microbiology Annual Meeting.
521. Chakraborty, R., S. E. Borglin, B. Smith, A. Pettenato, R. Lamendella, G. L. Andersen, and **T. C. Hazen**. Contributed. Biodegradation of oil and dispersant by indigenous bacteria isolated in the aftermath of the Deepwater Horizon Oil Spill. August 13, 2012, Washington, DC. Society of Industrial Microbiology Annual Meeting.
522. Chakraborty, R., J. L. Fortney, **T. C. Hazen**, J. Zhou, A. Zhou, M. P. Joachimiak, and A. P. Arkin. Contributed. Microbial Effect of environmental stressors on metal-reducing microbe *Geobacter metallireducens* strain GS15. August 13, 2012, Washington, DC. Society of Industrial Microbiology Annual Meeting.
523. **Hazen, T. C.** Invited Seminar. Can Mother Nature Take a Punch: The Deepwater Horizon Incident. August 6, 2012, Knoxville, TN. Technical Society of Knoxville.
524. _____. Blog. Business Bulletins. August 5, 2012, Knoxville, TN. KnoxvilleBiz.com. http://www.knoxnews.com/news/2012/aug/05/business-bulletins-august-5/
525. **Hazen, T. C.** Invited. Fate and distribution of Deepwater Horizon oil. July 30, 2012, Milwaukee, WI. University of Wisconsin at Milwaukee, Freshwater Institute.
526. Gilbert, D. NewsBlog. Waves of Berkeley Lab responders deploy omics to track Deepwater Horizon cleanup microbes. June 21, 2012, Berkeley, CA. EurekAlert http://www.eurekalert.org/pub_releases/2012-06/dgi-wob061512.php
527. Zhou, A., Z. He, E. Baidoo, K. Hillesland, M. P. Joachimiak, J. K. Baumoh, P. Benke, A. Mukhopadhyay, G. M. Zane, P. S. Dehal, J. D. Wall, A. P. Arkin, D. Stahl, **T. C. Hazen**, and J. Zhou. Contributed. Molecular basis to adaption to salt in *Desulfovibrio vulgaris* in an evolutionary context. June 16, 2012, San Francisco, CA. Annual Meeting of the American Society for Microbiology.
528. Dubinsky, E. A., L. Tom, F. Reid, S. Borglin, K. Chavarria, J. Fortney, D. Joyner, J. Kuehl, R. Lamendella, H. Lim, O. Mason, Y. Piceno, K. Wetmore, C. Wu, **T. C. Hazen**, and G. Andersen. Contributed. Succession and persistence of hydrocarbon-degrading microbial communities following the Deepwater Horizon Oil Spill. June 16, 2012, San Francisco, CA. Annual Meeting of the American Society for Microbiology.
529. Chakraborty, R., Y. M. Piceno, F. C. Reid, S. E. Borglin, E. A. Dubinsky, L. M. Tom, **T. C. Hazen**, and G. L. Andersen. Contributed. Microbial Community Structure and Hydrocarbon Degradation by Isolates Obtained from Different Depths in the Aftermath of the Deepwater Horizon Spill in the Gulf of Mexico. June 16, 2012, San Francisco, CA. Annual Meeting of the American Society for Microbiology.
530. Yilmaz, S., P. Liu, R. J. Meagher, Y. K. Light, A. P. Arkin, **T. C. Hazen**, and A. K. Singh. Contributed. Single-cell Analysis Platforms for Genomic Analysis of Uncultivable Environmental Microbes. June 16, 2012, San Francisco, CA. Annual Meeting of the American Society for Microbiology.
531. Lee, S., D. Tarjan, J. T. Geller, M. E. Singer, C. Wu, T. Torok, **T. C. Hazen**, N. J. Hillson, and A. P. Arkin. Contributed. Assessing and Mitigating the Biological Risks of Genetically Modified Bacteria in the Environment. June 16, 2012, San Francisco, CA. Annual Meeting of the American Society for Microbiology.
532. Walian, P., S. Allen, M. Shatsky, L. Zeng, E. Szakal, H. Liu, B. Lam, J. Geller, K. Hillesland, S. Hall, S. Fisher, M. Fields, D. Stahl, **T. C. Hazen**, S. Brenner, J-M. Chandonia, E. Witkowska, M. Biggin, and B. Jap. Contributed. Membrane Protein Complexes of *Desulfovibrio vulgaris*- Changes in Response to Stress and the Establishment of Communities. June 16, 2012, San Francisco, CA. Annual Meeting of the American Society for Microbiology.
533. Butland, G. P., S. R. Chhabra, B. Gold, N. L. Liu, S. Reveco, T. R. Juba, J. D. Wall, B. R. Lam, J. T. Geller, **T. C. Hazen**, M. Choi, M. D. Biggin, E. D. Szakal, S. Allen, H. Liu, H. E. Witkowska, and J-M. Chandonia. Contributed. High Throughput Identification of Protein Complexes from *Desulfovibrio vulgaris* by a Tandem Affinity Purification Pipeline. June 16, 2012, San Francisco, CA. Annual Meeting of the American Society for Microbiology.
534. Baidoo, E. E., S. Yilmaz, J. Geller, **T. C. Hazen**, A. K. Singh, and J. D. Keasling. Contributed. Differential Analysis of Metabolic Intermediates from *Desulfovibrio vulgaris* Hildenborough and *Methanococcus maripaludis* under Syntrophic Growth Conditions. June 16, 2012, San Francisco, CA. Annual Meeting of the American Society for Microbiology.
535. Meyer, B., J. Kuehl, A. Deutschbauer, M. Price, A. Arkin, **T. C. Hazen**, and D. Stahl. Contributed. Alternative Electron Transfer Systems in *Desulfovibrio*-Methanogen Assemblies: Case Study of *Desulfovibrio alaskensis* str.

G20-Methanogen Cocultures Grown on Lactate. June 16, 2012, San Francisco, CA. Annual Meeting of the American Society for Microbiology.

536. Hemme, C. L., Y. Deng, T. J. Gentry, M. W. Fields, L. Wu, S. Green-Tringe, D. B. Watson, Z. He, P. Chain, **T. C. Hazen**, J. M. Tiedje, E. M. Rubin, and J. Zhou. Contributed. Metagenomic Insights into Evolution of a Heavy Metal-Contaminated Groundwater Microbial Community. June 16, 2012, San Francisco, CA. Annual Meeting of the American Society for Microbiology.
537. Zhang. P., W-M. Wu, J. Van Nostrand, Y. Deng, Z. He, D. Curtis, T. Gihring, G. Zhang, C. Schadt, D. Watson, P. Jardine, C. Criddle, S. Brooks, T. Marsh, J. Tiedje, **T. C. Hazen**, and J. Zhou. Contributed. Dynamic Changes of Microbial Communities in Response to Stimulation with Emulsified Vegetable Oil for U(VI) Reduction at a Contaminated Aquifer. . June 16, 2012, San Francisco, CA. Annual Meeting of the American Society for Microbiology.
538. Moberly, J. G., T. J. Phelps, M. Podar, S. D. Brown, Z. K. Yang, M. M. Drake, **T. C. Hazen**, A. P. Arkin, A. V. Palumbo, and D. A. Elias**.** Contributed. Development of a Model Microbial Community for a Systems Biology Level Assessment of Metal-reduction. June 16, 2012, San Francisco, CA. Annual Meeting of the American Society for Microbiology.
539. Mosher, J. J., T. J. Phelps, M. Podar, S. D. Brown, **T. C. Hazen**, A. P. Arkin, A. V. Palumbo, B. A. Faybishenko, and D. A. Elias**.** Contributed. Determination of the Influence of Chromium on Microbial Community Structure and Function. June 16, 2012, San Francisco, CA. Annual Meeting of the American Society for Microbiology.
540. Lamendella, R., S. E. Borglin, R. Chakraborty, **T. C. Hazen**, and J. K. Jansson. Contributed. Metatranscriptomics of an oil contaminated beach following the Deepwater Horizon Oil Spill. June 16, 2012, San Francisco, CA. Annual Meeting of the American Society for Microbiology.
541. Podar, M., J. J. Mosher, S. D. Brown, D. C. Joyner, R. Csencsits, T. J. Phelps, K. H. Downing, **T. C. Hazen**, A. P. Arkin, A. V. Palumbo, and D. A. Elias. Contributed. A Functional Genomic Characterization of Metal-reducing *Pelosinus* spp. isolated from Cr(VI) Contaminated Groundwater. June 16, 2012, San Francisco, CA. Annual Meeting of the American Society for Microbiology.
542. **Hazen, T. C.** Invited. Fate and distribution of Deepwater Horizon oil. June 3-8, 2012, Biddeford, ME. Gordon Research Conference on Oceans and Human Health.
543. Spier C.L., W.T. Stringfellow, **T.C. Hazen**, and M. Conrad. Contributed. An investigation of hydrocarbons sampling distribution in subsurface sediment and water samples after the 2010 deepwater horizon oil spill and the relationship between contamination in sediments and the water column. April 30-May 4, 2012, Portland, OR, 8th National Monitoring Conference.
544. Hazen T. C. Invited. Deepwater Horizon Oil Spill Ecogenomics. April 12, 2012, Davis CA. University of California at Davis Seminar.
545. Schmidt, C. Magazine Article. Exxon Valdez Vs. Deepwater Horizon: ES&T's Top Feature Article 2011. March 23, 2012. Environ. Sci. Technol. 2012, 46:3603−3604
546. **Hazen, T. C.** Keynote. Deepwater Horizon Oil Spill Ecogenomics. March 25-29, 2012, San Diego, CA. ACS Spring Meeting.
547. Dubinsky, E. A., L. M. Tom, F. Reid, S. Borglin, K. Chavarria, J. Fortney, D. Joyner, J. Kuehl, R. Lamendella, H. - C. Lim, R. Mackelprang, O. U. Mason, Y. Piceno, K. Wetmore, C. Wu, **T. C. Hazen**, G. L. Andersen. Contributed. Microbial community composition as a highly sensitive biosensor for oil spills in the deep ocean. March 2012, San Diego, CA. ACS Spring Meeting.
548. Mason, O. U., **T. C. Hazen**, T. Woyke, and J. K. Jansson. Contributed. 'Omics' analyses of the deep-sea microbial community response to the Deepwater horizon oil spill. March 2012, San Diego, CA. ACS Spring Meeting.
549. Andersen, G. L., Y. M. Piceno, F. C. Reid, R. Chakraborty, S. E. Borglin, E. A. Dubinsky, L. M. Tom, H. -Y. N. Holman, **T. C. Hazen**. Contributed. Microbial community structure and *in situ* MC-252 oil degradation at different depths in the Gulf of Mexico. March 2012, San Diego, CA. ACS Spring Meeting.
550. Lamendella, R., S. E. Borglin, R. Chakraborty, **T. C. Hazen**, and J. K. Jansson. Contributed. Microbial Community Dynamics on an oil contaminated beach following the Deepwater Horizon Oil Spill. March 2012, San Diego, CA. ACS Spring Meeting.
551. **Hazen, T. C**. Invited. Can Mother Nature Take a Punch: the Gulf Oil Spill. March 9, 2012, Knoxville, TN. University of Tennessee, Science Forum.
552. **Hazen, T. C**. Invited. Can Mother Nature Take a Punch: the Gulf Oil Spill. March 6, 2012, Flagstaff, AZ. University of Northern Arizona.
553. D'haeseleer*, P. D., J. Gladden, J. Park, A. Redding, C. Petzold, M. Allgaier, D. Chivian, S. Singer, **T. C. Hazen,** and B. Simmons. Invited. Metagenomics, Metabolic Reconstruction, and High-Resolution Proteomics of Biomass Degradation in a Thermophilic Bacterial Community. February 27-29, 2012. Washington, DC. DOE Genomic Science Meeting.

554. Walian*, P. J., S. Allen, Max Shatsky, Lucy Zeng, Evelin D. Szakal, Haichuan Liu, Bonita Lam, Jil T. Geller, Kristina L. Hillesland, Steven C. Hall, Susan J. Fisher, Matthew W. Fields, David A. Stahl, **T. C. Hazen**, Steven E. Brenner, Adam M. Deutschbauer, Trent R. Northen, John-Marc Chandonia, H. Ewa Witkowska, Mark D. Biggin, Bing K. Jap, and Paul D. Adams. Invited. ENIGMA Biotechnology: Membrane Protein Complexes—Their Roles in *Desulfovibrio vulgaris* Stress Response and in the Establishment and Maintenance of Communities. February 27-29, 2012. Washington, DC. DOE Genomic Science Meeting.
555. Auer, M. A. Gorur*, P. Arbeleaz, N. Baliga, D. A. Ball, M. Biggin, J. M. Chandonia, S. Chhabra, R. Csencsits, K. H. Downing, M. W. Fields, J. T. Geller, R. Glaeser, **T. C. Hazen**, G. L. Hura, T. Juba, B. Lam, C. M. Leung, J. Liphardt, J. Malik, J. P. Remis, S. Reveco, J. Tainer, A. Tauscher, J. Wall, A. Deutschbauer, T. Northen, A. Arkin, and P. D. Adams. Invited. ENIGMA Biotechnology: Biofilm Imaging: From Protein Complexes to Intact Microbial Communities. February 27-29, 2012. Washington, DC. DOE Genomic Science Meeting.
556. Lancaster*, W. A., I. Scott, B. Vacarro, A. L. Menon, F. L. Poole, J. Geller, J. J. Mosher, **T. C. Hazen**, D. A. Elias, M. W.W. Adams, A. P. Arkin, and P. Adams. Invited. ENIGMA Microbial Physiology: Assimilatory and Dissimilatory Metallomics of *Desulfovibrio vulgaris* and *Pelosinus* Strain A11. February 27-29, 2012. Washington, DC. DOE Genomic Science Meeting.
557. Chandonia, J.-M., M. Shatsky, M. Dong, H. Liu, L. Yang, J. T. Geller, M. Choi, B. Gold, N. L. Liu, M. Khairy, S. Reveco, T, R. Juba, B. R. Lam, E. D. Szakal, S. Allen, S. Kumar, F. L. Poole, S. E. Brenner, S. C. Hall, S. J. Fisher, M. Adams, **T. C. Hazen**, J. D. Wall, S. Chhabra, J. Jin, H. E. Witkowska, A. P. Arkin, G. P. Butland, M. D. Biggin, and P. D. Adams. Invited. ENIGMA Microbiology Physiology: Accurate, High-Throughput Identification of Stable Protein Complexes in *Desulfovibrio vulgaris*. February 27-29, 2012. Washington, DC. DOE Genomic Science Meeting.
558. Geller, J., S. Lee, D. Tarjan, C. Wu, T. Torok, **T. C. Hazen**, A. P. Arkin, and N. J. Hillson*. Invited. ELSI Pilot: Assessing and Mitigating the Risks of Large-Scale Metabolic Engineering. February 27-29, 2012. Washington, DC. DOE Genomic Science Meeting.
559. Cheng*, X., W. Reindl, K. Deng, B. Bowen, B. Lai, J M. Gladden, S. W. Singer, A. Wong, **T. C. Hazen,** B. Fox, K. Sale, B. A. Simmons, A. K. Singh, J. Keasling, P. D. Adams, and T. R. Northen. Invited. Nanostructure-Initiator Mass Spectrometry (NIMS): High Throughput Enzyme Activity Assays for Biofuel Development. February 27-29, 2012. Washington, DC. DOE Genomic Science Meeting.
560. Yilmaz*, S., P. Liu, R. J. Meagher, Y. Light, A. P. Arkin[2] **T. C. Hazen**, A. K. Singh, and P. D. Adams. Invited. Single-cell Analysis Platforms for Genomic Analysis of Uncultivable Environmental Microbe**s**. February 27-29, 2012. Washington, DC. DOE Genomic Science Meeting.
561. Chakraborty*, R., S. E Borglin, B. Faybishenko, P. Dehal, A. P. Arkin, **T. C. Hazen**, M. W. Fields, J. Geller, J. Fortney, D. Joyner[2], M. Conrad, and P. D. Adams. Invited. Effect of Nitrate Stress on Metal-reducing Microbes and Results of Nitrate push/pull Field Tests at Hanford 100H. February 27-29, 2012. Washington, DC. DOE Genomic Science Meeting.
562. Elias*, D. A., J. J. Mosher, T. J. Phelps, M. Podar, R. A. Hurt, J. H. Campbell, M. M. Drake, J. G. Moberly, C. W. Schadt, S. D. Brown, **T. C. Hazen**, A. P. Arkin, A. V. Palumbo, B. A. Faybishenko, and P. D. Adams. Invited. ENIGMA Environmental: Succession of Hanford Groundwater Microbial Communities During Lactate Amendment and Electron-acceptor Limitation. February 27-29, 2012. Washington, DC. DOE Genomic Science Meeting.
563. De Leon, K. B., B. D Ramsay, D. R. Newcomer, B. Faybishenko, **T. C. Hazen**, and M. W. Fields*, and P. D. Adams. Invited. ENIGMA: Microbial Community Dynamics in Groundwater and Surrogate Sediments During HRC® Biostimulation of Cr(VI)-Reduction. February 27-29, 2012. Washington, DC. DOE Genomic Science Meeting.
564. Meyer*, B., K. L Hillesland, J. Flowers, N. Pinel, N. Elliott, J. D. Wall, M. Joachimiak, A. Zhou, J. Zhou, J. Kuehl, A. Deutschbauer, M. Price, Z. He, A. Mukhopadhyay, E. Baidoo, T. Northern, N. Baliga, M. Biggin, M. Dong, P. Walian, A. Singh, S. Yilmaz, D. Elias, M. Fields, H. Garcia-Martin, **T. C. Hazen,** A. P. Arkin, and D. A. Stahl. Invited. ENIGMA Laboratory: Evolutionary and Ecological Origins of Community Assembly, Stability, and Efficiency. February 27-29, 2012. Washington, DC. DOE Genomic Science Meeting.
565. Zhou*, J., Z. He, Y. Deng, A. Zhou, P. Zhang, Q. Tu, J. Van Nostrand, H. Yu, Z. Shi, J. Voordeckers, Y. Lee, R. Song, L. Wu, M. W. Fields, D. A. Stahl, J. D. Wall, **T. C. Hazen**, A. P. Arkin, and P. D. Adams. Invited. ENIGMA Environmental: Metagenomics-Enabled Understanding of Microbial Communities At DOE Contaminated Sites. February 27-29, 2012. Washington, DC. DOE Genomic Science Meeting.
566. **Hazen*, T. C.,** M. W. Fields, J. Zhou, J. Van Nostrand, D. A. Elias, J. J. Mosher, S. D. Brown, T. J. Phelps, M. Podar, A. V. Palumbo, R. A. Hurt, A. Singh, E. Alm, M. B. Smith, D. C. Joyner, R. Chakraborty, B. Faybishenko, K. DeLeon, J. Geller, B. Lam, T. Torok, J. Fortney, S. E. Borglin, D. Stahl, J. Wall, A. P. Arkin, and P. D. Adams**.** Invited. ENIGMA Environmental Overview: Field to Lab to Field. February 27-29, 2012. Washington, DC. DOE Genomic Science Meeting.

567. Dubinsky, E. A., Y. M. Piceno, F. C. Reid, L. M. Tom, **T. C. Hazen**, and G. L. Andersen. Contributed. Microbial community composition in a deep water oil plume and dissolved oxygen anomalies. February 20-24, 2012, Salt Lake City, UT, 2012 Ocean Sciences Meeting.
568. Spier, C. L., W. T. Stringfellow, **T. C. Hazen**, and M. Conrad. Contributed. An investigation into the distribution of hydrocarbons in sediments and the subsurface water column after the 2010 explosion of the Macondo 252 Deepwater Oil Rig. February 20-24, 2012, Salt Lake City, UT, 2012 Ocean Sciences Meeting.
569. **Hazen, T. C.** Invited. Deepwater Horizon Oil Spill Ecogenomics. February 20-24, 2012, Salt Lake City, UT. 2012 Ocean Sciences Meeting
570. **Hazen, T. C**. Keynote. Ecogenomics enables a new systems biology understanding of the Deepwater Horizon oil spill. February 17, 2012, Calgary, Canada. Genome Alberta Hydrocarbon Metagenomics Workshop.
571. **Hazen, T. C**. Keynote. Deepwater Horizon Oil Spill Ecogenomics. February 15, 2012, Winnipeg, Canada. Manitoba Environmental Industries Association annual workshop.
572. **Hazen, T. C**. Invited. Deepwater Horizon Oil Spill Ecogenomics. February 10, 2012, Fairbanks, AK. University of Alaska, Fairbanks.
573. **Hazen, T. C.** Invited. Can Mother Nature Take a Punch? Systems Biology of the Gulf Oil Spill. February 2, 2012, Knoxville, TN. University of Tennessee, Civil & Environmental Engineering.
574. **Hazen, T**. C. Invited. What happened to the Gulf Oil Spill: A Systems Biology Approach? January 24, 2012, Oak Ridge, TN. Biosciences Division, Oak Ridge National Lab.
575. Voosen, P. Newsblog. Scientists chart new path for Deepwater Horizon plume. January 10, 2012, Greenwire. http://www.eenews.net/public/Greenwire/2012/01/10/4
576. Boxall, B. Newspaper. Gulf currents aided breakdown of oil after BP spill, study says. January 9, 2012, Miami Herald. http://www.miamiherald.com/2012/01/09/2581760/gulf-currents-aided-breakdown.html
577. **Hazen. T. C.,** B. Faybishenko, H. R. Beller, E. Brodie, E. L. Sonnenthal, C. I. Steefel, J. Larsen, M. E. Conrad, J. N. Christensen, S. T. Brown, D. C. Joyner. S. E. Borglin, J. Geller, R. Chakraborty, P. Nico, P. Long, D. Newcomer, and E. Armtzen. Contributed. Comparison of field groundwater biostimulation experiments using polylactate and lactate solutions at the Chromium-contaminated Hanford 100-H Site. December 2011, San Francisco, CA. American Geophysical Union Annual Meeting.
578. Spier, C.L., W.T. Stringfellow, E. Sonnenthal, M. Conrad, and **T.C. Hazen**. Contributed. The distribution of hydrocarbons in surface and deepwater plumes during the MC252 oil spill in the Gulf of Mexico. December 5th, 2011, San Francisco, CA, American Geophysical Union Fall Meeting.
579. **Hazen, T. C.** Invited Workshop. NOAA Marine Microbes Workshop. November 29-December 1, 2011, Charleston, SC. NOAA.
580. **Hazen, T. C.** Invited Seminar. The Deepwater Horizon Oil Spill: Ecogenomics and biodegradation of the deep-sea plume---Remediation of Hydrocarbon Spills. November 15, 2011, Wilmington, NC. University of North Carolina Wilmington Planet Ocean Seminar Series.
581. **Hazen, T.** C. Invited Seminar. Deepwater Horizon Oil Spill - popular media vs. science lessons learned. November 15, 2011, Wilmington, NC. University of North Carolina Wilmington Planet Ocean Seminar Series.
582. **Hazen, T. C.** Keynote. The Deepwater Horizon Oil Spill: Ecogenomics and biodegradation of the deep-sea plume---Remediation of Hydrocarbon Spills. November 8, 2011, Houston, TX. IPEC Conference.
583. **Hazen, T. C.** Invited Seminar. The Deepwater Horizon Oil Spill: Ecogenomics and biodegradation of the deep-sea plume---Remediation of Hydrocarbon Spills. October 22, 2011, Astana, Kazakhstan. Kazakhstan National Library. US State Department Visit to Kazakhstan.
584. **Hazen, T. C.** Invited Seminar. The Deepwater Horizon Oil Spill: Ecogenomics and biodegradation of the deep-sea plume---Remediation of Hydrocarbon Spills. October 21, 2011, Astana, Kazakhstan. The Euroasian National University. US State Department Visit to Kazakhstan.
585. **Hazen, T. C.** Invited Seminar. The Deepwater Horizon Oil Spill: Ecogenomics and biodegradation of the deep-sea plume---Remediation of Hydrocarbon Spills. October 21, 2011, Astana, Kazakhstan. Kazakhstan National Center for Biotechnology. US State Department Visit to Kazakhstan.
586. **Hazen, T. C.** Invited Seminar. The Deepwater Horizon Oil Spill: Ecogenomics and biodegradation of the deep-sea plume---Remediation of Hydrocarbon Spills. October 19, 2011, Atyrua, Kazakhstan. Caspian State University of Technologies and Engineering. US State Department Visit to Kazakhstan.
587. **Hazen, T. C.** Invited Seminar. The Deepwater Horizon Oil Spill: Ecogenomics and biodegradation of the deep-sea plume---Remediation of Hydrocarbon Spills. October 19, 2011, Aktau, Kazakhstan. Aktau Region Akimat. US State Department Visit to Kazakhstan.
588. **Hazen, T. C.** Invited Seminar. The Deepwater Horizon Oil Spill: Ecogenomics and biodegradation of the deep-sea plume---Remediation of Hydrocarbon Spills. October 17, 2011, Atyrua, Kazakhstan. Atyrau Region Akimat. US State Department Visit to Kazakhstan.

589. **Hazen, T. C.** Invited Seminar. The Deepwater Horizon Oil Spill: Ecogenomics and biodegradation of the deep-sea plume---Remediation of Hydrocarbon Spills. October 17, 2011, Atyrua, Kazakhstan. Atyrau Institute of Oil and Gas. US State Department Visit to Kazakhstan.
590. **Hazen, T. C.** Invited Seminar. The Deepwater Horizon Oil Spill: Ecogenomics and biodegradation of the deep-sea plume---Remediation of Hydrocarbon Spills. October 15, 2011, Uralsk, Kazakhstan. American Club. US State Department Visit to Kazakhstan.
591. **Hazen, T. C.** Invited Seminar. The Deepwater Horizon Oil Spill: Ecogenomics and biodegradation of the deep-sea plume---Remediation of Hydrocarbon Spills. October 14, 2011, Uralsk, Kazakhstan. West Kazakhstan State University. US State Department Visit to Kazakhstan.
592. **Hazen, T. C.** Invited Seminar. The Deepwater Horizon Oil Spill: Ecogenomics and biodegradation of the deep-sea plume---Remediation of Hydrocarbon Spills. October 14, 2011, Uralsk, Kazakhstan. West Kazakhstan Technical University. US State Department Visit to Kazakhstan.
593. **Hazen, T. C.** Invited Seminar. Ecogenomics enables a new systems biology understanding of the Deepwater Horizon oil spill. September 28, 2011, Berkeley, CA. UC-Berkeley, Department of Plant and Microbial Biology.
594. Berwyn, B. News Article. Microbial cleanups touted for major oil spills. August 20, 2011. Summit County Citizens Voice. http://summitcountyvoice.com/2011/08/20/microbial-cleanups-touted-for-major-oil-spills/
595. **…**… News Article. Microbes' role in oil spills investigated. August 19, 2011. iStockAnalyst. http://www.istockanalyst.com/business/news/5370015/microbes-role-in-oil-spills-investigated
596. ……News Article. Lessons learned from the two worst oils spills in US history: Microbes matter. August 23, 2011. BayouBuzz.com. http://www.bayoubuzz.com/louisiana-local-news/bp-oil-spill/323275-lessons-learned-from-the-two-worst-oils-spills-in-us-history-microbes-matter
597. Yarris, L. News Article. Lessons learned from the two worst oils spills in U.S. history. August 19, 2011, PHYSORG.com. http://www.physorg.com/news/2011-08-lessons-worst-oils-history.html
598. **Hazen, T. C.** Invited Symposium. The Deepwater Horizon Oil Spill: Ecogenomics and biodegradation of the deep-sea plume. August 14-19, 2011, Prague, Chez Republic. Goldschmidt Conference.
599. Conrad*, M. E., M. Bill, W.T. Stringfellow, S. E. Borglin, O. U. Mason, E. A. Dubinsky, Y. M. Piceno, J. L. Fortney, L. M. Tom, K. L. Chavarria, R. Lamendella, D. C. Joyner, K. Wetmore, J. Kuehl, R. Mackelprang, C. Wu, J. Lim, F. Reid, and **T. C. Hazen**. Invited Symposium. Isotopic evidence for microbial oxidation of dissolved methane in the Gulf of Mexico oil spill deep plume. August 14-19, 2011, Prague, Chez Republic. Goldschmidt Conference.
600. **Hazen, T. C.** Invited Seminar. Can Mother Nature Take a Punch? - Microbes and the BP Oil Spill in the Gulf of Mexico. August 16, 2011, Sunbury, UK. BP Headquarters.
601. Raloff, J. News Article. Bacteria binged on BP oil but didn't grow. August 5, 2011. ScienceNews. http://www.sciencenews.org/view/generic/id/333086/title/Bacteria_binged_on_BP_oil_but_didnt_grow__
602. **Hazen, T. C.** Invited Symposium. A Systems Biology Approach to the Deepwater Horizon Oil Spill – an example of Team Science for ecological disasters. July 27, 2011, Ocean Springs, MS. Grimes Distinguished Lecturer Program, Gulf Coast Research Lab.
603. **Hazen, T. C.** Invited Symposium Convener. The Gulf Oil Spill. July 25, 2011, New Orleans, LA. SIM annual meeting.
604. Chakraborty*, R., **T. C. Hazen**, S. E. Borglin, and D. C. Joyner. Invited Symposium. Degradation and oil and dispersant by microbes isolated from the Gulf of Mexico in the aftermath of MC252 oil spill. July 25, 2011, New Orleans, LA. SIM annual meeting.
605. Grimes*, D. J., **T. C. Hazen**, S. McClellan, M. Sogin, and J. B. Paul. Invited Symposium. Vibrios and petroleum biodegradation – capable but contributory? July 25, 2011, New Orleans, LA. SIM annual meeting.
606. Andersen*, G. L., E. Dubinsky, Y. M. Piceno, L. Tom, K. Sublette, T. Z. DeSantis, **T. C. Hazen**, and S. E. Borglin. Invited Symposium. Response of petroleum-degrading microbial communities at different depths to the Deepwater Horizon oil spill. July 25, 2011, New Orleans, LA. SIM annual meeting.
607. DeAngelis*, K. M., P. D'Haeseleer, J. Fortney, S. Borglin, W. L. Silver, and **T. C. Hazen**. Invited Symposium. Metagenomics of anaerobic lignocellulolytic feedstock-adapted consortia derived from tropical forest soils. July 26, 2011, New Orleans, LA. SIM annual meeting. July 26, 2011, New Orleans, LA. SIM annual meeting.
608. Mason, O. U., **T. C. Hazen**, and J. R. Jansson. Invited Symposium. Metagenomic, Metatranscriptomics and single cell genomic analysis of the deep-sea microbial community response to the Deep Water Horizon oil Spill. July 26, 2011, New Orleans, LA. SIM annual meeting. July 26, 2011, New Orleans, LA. SIM annual meeting.
609. Sobecky*, P. A., M. Beazley, R. J. Martinez, S. S. Rajan, J. Powell, Y. Piceno, G. L. Andersen, L. Tom, **T. C. Hazen**, J. D. Nostrand, J. Zhou, and B. Mortazav. Invited Symposium. Coastal Alabama Bacterial Community Responses to the Deepwater Horizon Oil Spill. July 25, 2011, New Orleans, LA. SIM annual meeting. July 28, 2011, New Orleans, LA. SIM annual meeting.

610. **Hazen, T. C.** Invited Symposium Convener. Metagenome and single cell sequencing. July 26, 2011, New Orleans, LA. SIM annual meeting.
611. **Hazen, T. C.**, B. Faybishenko*, H. Beller, E. Brodie, E. Sonnenthal, C. Steefel, J. Larsen, M. Conrad, M. Bell, J. Christensen, S. Brown, D. Joyner, S. Borglin, J. Geller, R. Chakraborty, P. Nico, P. Long, D. Newcomer, and E. Arntzen. Contributed. Comparison of Field Groundwater Biostimulation Experiments Using Polylactate and Lactate Solutions at the Chromium Contaminated Hanford 100-H Site. June 27, 2011, Reno, NV. The International Symposium on Bioremediation and Sustainable Environmental Technologies.
612. **Hazen, T. C.** Invited Symposium. The Gulf Oil Spill. June 27, 2011, Reno, NV. The International Symposium on Bioremediation and Sustainable Environmental Technologies.
613. ……News Blog. Berkeley Lab Scientist Wins PNNL's Outstanding Lecture Award. June 17, 2011, Berkeley, CA. Today at Berkeley Lab, http://today.lbl.gov/2011/06/17/berkeley-lab-scientist-wins-pnnl's-outstanding-lecture-award/
614. **Hazen, T. C.** Invited Seminar. The Gulf Oil Spill. June 15, 2011, Emeryville, CA. JBEI Seminar Program.
615. **Hazen, T. C**. Invited Seminar. A Systems Biology Approach to the Deepwater Horizon Oil Spill – *an example of Team Science for ecological disasters*. June 13, 2011, Richland, WA. Pacific Northwest National Laboratory Frontiers Lecture Series.
616. Baelum, J., S. E. Borglin, J. L. Fortney, R. Lamendella, O. U. Mason, M. Bill, M. E. Conrad, S. Malfatti, S. Tringe, H.-Y. Holman, **T. C. Hazen**, and J. K. Jansson. Contributed. Simulations of the microbial community response to the Deepwater Horizon Oil spill in the Gulf of Mexico using a microcosm approach. May 30, 2011, Corfu, Greece. BAGECO2011 Meeting.
617. **Hazen, T. C.** Invited Keynote. Microbial Response to the Deepwater Horizon Oil Spill in the Gulf of Mexico. May 30, 2011, Corfu, Greece. BAGECO2011 Meeting.
618. **Hazen, T. C.** TV interview. Impact Of BP Spill May Not Be Catastrophic. May 22, 2011, San Francisco, CA. KTVU http://www.ktvu.com/news/27986393/detail.html
619. Dickey Zakaib, G. NewsBlog. Role of bacteria in Gulf oil spill under the microscope. May 22, 2011, Nature, http://blogs.nature.com/news/2011/05/microbiology_meeting_highlight.html.
620. **Hazen, T. C.** Invited Seminar. Can Mother Nature Take a Punch? - Microbes and the BP Oil Spill in the Gulf of Mexico. May 22, 2011, New Orleans, LA. Tulane University
621. **Hazen, T. C.** Invited Symposium. Microbial Ecogenomic Response to the Deepwater Horizon Oil Spill in the Gulf of Mexico - Deepwater Horizon & Beyond. May 22, 2011, New Orleans, LA. ASM annual Meeting.
622. Hu*, P., C. H. Wu, T. DeSantis, P. Jasrotia, H. Woo, K. Kearcher, S. Meiss, T. Torok, L. D. Taylor, W. Overholt, S. Green, G. L. Andersen, J. E. Kostka, and **T. C. Hazen**. Contributed. Validation of MycoChip — A Microarray for Fungal Community Studies. May 22, 2011, New Orleans, LA. ASM annual Meeting.
623. Bælum*, J., S. Borglin, J. L. Fortney, R. Lamendella, O. U. Mason, M. Bill, M. E. Conrad, H-Y. Holman, S. A. Malfatti, S. Tringe, **T. C. Hazen**, and J. K. Jansson. Contributed. Microcosm Simulations of the Microbial Community Response to the Deepwater Horizon Oil Spill in the Gulf of Mexico. May 22, 2011, New Orleans, LA. ASM annual Meeting.
624. Zhang*, P., W-M. Wu, J. Van Nostrand, Y. Deng, Z. He, T. Gihring, G. Zhang, C. Schadt, D. Watson, P. Jardine, C. Criddle, S. Brooks, T. Marsh, J. Tiedje, **T. C. Hazen**, and J. Zhou. Contributed. Diverse Functional Genes of Microbial Community Stimulated with Emulsified Vegetable Oil for in situ U(VI) Reduction. May 22, 2011, New Orleans, LA. ASM annual Meeting.
625. Gorur*, A., C. M. Leung, A. Tauscher, D. Jorgens, S. Reveco, J. Remis, B. Lam, J. T. Geller, **T. C. Hazen**, T. Juba, S. Chhabra, J. Wall, M. Biggin, K. H. Downing, and M. Auer. Contributed. High Throughput Subcellular Protein Expression and Localization Studies in the Anaerobic Sulfate Reducer *Desulfovibrio vulgaris*. May 22, 2011, New Orleans, LA. ASM annual Meeting.
626. Zhou*, A., Z. He, E. Baidoo, K. Hillesland, M. P. Joachimiak, J. Baumohl, P. Benke, A. Mukhopadhyay, P. S. Dehal, A. P. Arkin, D. Stahl, **T. C. Hazen**, and J. Zhou. Contributed. Transcriptomics and Metabolites Assay of Salt-Adapted *Desulfovibrio vulgaris* Hildenborough in Experimental Evolution. May 22, 2011, New Orleans, LA. ASM annual Meeting.
627. Chhabra*, S., B. Gold, N. L. Liu, S. Reveco, T. R. Juba, J. D. Wall, B. R. Lam, J. T. Geller, **T. C. Hazen**, M. Choi, M. D. Biggin, E. D. Szakal, S. Allen, H. Witkowska, J-M. Chandonia, and G. P. Butland. Contributed. Engineering *Desulfovibrio vulgaris* Hildenborough for High Throughput Tandem Affinity Purification of Protein Complexes. May 22, 2011, New Orleans, LA. ASM annual Meeting.
628. Walian*, P. J., S. Allen, L. Zeng, E. Szakal, S. C. Hall, S. J. Fisher, R. Santos, B. Lam, J. T. Geller, **T. C. Hazen**, J. M. Chandonia, H. E. Witkowska, M. D. Biggin, and B. K. Jap. Contributed. High-throughput Pipeline for the Purification and Identification of *Desulfovibrio vulgaris* Membrane Protein Complexes. May 22, 2011, New Orleans, LA. ASM annual Meeting.

629. Chandonia*, J-M., M. Dong, M. Shatsky, H. Liu, S. E. Brenner, L. Yang, **T. C. Hazen**, J. T. Geller, M. Choi, E. D. Szakal, J. Jin, H. E. Witkowska, A. P. Arkin, and M. D. Biggin. Contributed. Accurate, High-Throughput Identification of Stable Protein Complexes Using a Tagless Strategy. May 22, 2011, New Orleans, LA. ASM annual Meeting.
630. Moberly*, J. G., T. J. Phelps, C. W. Schadt, M. Podar, S. D. Brown, Z. K. Yang, M. M. Drake, **T. C. Hazen**, A. P. Arkin, A. V. Palumbo, and D. A. Elias. Contributed. Development of a Model Microbial Community for a Systems Biology Level Assessment of Metal-reduction. May 22, 2011, New Orleans, LA. ASM annual Meeting.
631. Martinez*, R. J., C. H. Wu, M. J. Beazley, G. L. Andersen, T. C. Hazen, M. Taillefert, and P. A. Sobecky. Contributed. Microbial Phosphatase Activity Involved in Subsurface Uranium Sequestration. May 22, 2011, New Orleans, LA. ASM annual Meeting.
632. Liu*, P., R. J. Meagher, Y. Light, S. Yilmaz, R. Chakraborty, A. P. Arkin, T. C. Hazen, and A. K. Singh. Contributed. Microfluidic Fluorescence in situ Hybridization and Flow Cytometry Microdevice for Environmental Microbial Detection. May 22, 2011, New Orleans, LA. ASM annual Meeting.
633. Borglin*, S. E., Y. Piceno, D. C. Joyner, J. Fortney, and **T. C. Hazen**. Contributed. Analysis of microbial community structure and alkane composition in Mississippi Canyon oil spill using phospholipid fatty acid analysis. May 24, 2011, New Orleans, LA. ASM annual Meeting.
634. Joyner*, D. C., R. Chakraborty, S. E. Borglin, D. H. Long, and **T. C. Hazen**. Contributed. High Throughput Metabolic Phenotype Profiling of Oil and Dispersant Degrading Consortia from the MC252 Oil Spill in the Gulf of Mexico. May 22, 2011, New Orleans, LA. ASM annual Meeting.
635. Chakraborty*, R., S. E. Borglin, D. H. Long, D. C. Joyner, and **T. C. Hazen**. Contributed. Interaction of MC252 oil and COREXIT with isolates and enrichments from Gulf of Mexico. May 22, 2011, New Orleans, LA. ASM annual Meeting.
636. Geller*, J. T., H. Woo, D. C. Joyner, S. Kendall, and **T. C. Hazen**. Contributed. Microfluidic Studies of Nitrate Stress on *Shewanella oneidensis* Biofilms. May 22, 2011, New Orleans, LA. ASM annual Meeting.
637. Lamendella*, R., S. Borglin, J. Hultman, O. U. Mason, F. Reid, J. Fortney, K. Wetmore, J. Kuehl, H.- C. Lim, **T. C. Hazen**, and J. Jansson. Contributed. Impact of the Deepwater Horizon Oil Spill on beach microbial community dynamics. May 22, 2011, New Orleans, LA. ASM annual Meeting.
638. Mosher*, J. J., T. J. Phelps, S. L. Carroll, M. M. Drake, C. W. Schadt, M. Podar, S. D. Brown, **T. C. Hazen**, A. P. Arkin, A. V. Palumbo, B. A. Faybishenko, and D. A. Elias. Contributed. Isolation of metal reducing organisms from lactate-enriched contaminated groundwater. May 22, 2011, New Orleans, LA. ASM annual Meeting.
639. Mason*, O. U., R. Lamendella, J. Hultman, R. Mackelprang, S. Borglin, L. M. Tom, E. A. Dubinsky, J. Fortney, **T. C. Hazen**, and J. K. Jansson. Contributed. Metagenomic analysis of the deep-sea microbial community response to the Deepwater Horizon oil spill. May 22, 2011, New Orleans, LA. ASM annual Meeting.
640. D'Haeseleer*, P., J. M. Gladden, A. M. Redding-Johanson, C. J. Petzold, P. I. Benke, M. Allgaier, D. C. Chivian, J. S. VanderGheynst, **T. C. Hazen**, B. A. Simmons, and S. W. Singer. Metagenomics, Proteomics, and Metabolic Reconstruction of a Thermophilic Feedstock-adapted Bacterial Community. May 22, 2011, New Orleans, LA. ASM annual Meeting.
641. Rajan*, S., R. J. Martinez, M. J. Beazley, Y. Piceno, G. L. Andersen, **T. C. Hazen**, P. A. Sobecky, and B. Mortazavi. Contributed. Coastal Alabama Microbial Responses to the Deepwater Horizon Oil Spill. May 22, 2011, New Orleans, LA. ASM annual Meeting.
642. **Hazen, T. C.** Keynote. Can Mother Nature Take a Punch? - Microbes and the BP Oil Spill in the Gulf of Mexico. May 18, 2011, Chicago, IL. REMTEC.
643. Grossman, E. Journal. Murky Waters. May15, 2011, Earth Island Journal. http://www.earthisland.org/journal/index.php/eij/article/murky_waters
644. Fancher, L. Newspaper. Mother Nature Cleans up Gulf Oil Spill. May 12, 2011, Walnut Creek, CA. Walnut Creek Patch. http://walnutcreek.patch.com/articles/mother-nature-cleans-up-gulf-oil-spill
645. **Hazen, T. C.** Keynote. Microbes Cope with Calamity: Gulf Oil Spill. May 9, 2011, Walnut Creek, CA. JGI@Lesher: The Deal with Carbon: How Earth's Mighty Microbes Respond. http://www.jgi.doe.gov/News/lesher/may2011.html
646. Bohan, S. Newspaper. Lawrence Berkeley Lab scientists tinker with microbes to battle climate change. May 6, 2011, Walnut Creek, CA. Contra Costa Times. http://www.contracostatimes.com/bay-area-news/ci_18011392?nclick_check=1
647. **Hazen, T. C.** Invited Darden Lecture. Can Mother Nature Take a Punch? - Microbes and the BP Oil Spill in the Gulf of Mexico. April 20, 2011, Tuscaloosa, AL. Darden Lecture, Department of Biology, University of Alabama.
648. Cassidy, G. News. One Year Later: Did Bacteria Save Oil and Gas Stocks? April 20, 2011, Bezingas Real Time News. http://www.benzinga.com/trading-ideas/long-ideas/11/04/1011228/one-year-later-did-bacteria-save-oil-and-gas-stocks

649. Lovett, R. A. Magazine. Why Did Huge Oil Plumes Form After the Gulf Spill? April 20, 2011, National Geographic Daily News. http://news.nationalgeographic.com/news/2011/04/110420-gulf-oil-spill-anniversary-plumes-dispersants-science-nation/
650. Anthony, L. TV Interview. UC researcher reflects on Gulf oil spill. April 15, 2011, San Francisco, CA, ABC news http://abclocal.go.com/kgo/story?section=news/local/east_bay&id=8075967
651. Kaufman, L. Newspaper. Nearly a year after spill, Gulf studies yield more than damage. April 15, 2011. New York Times. http://www.bendbulletin.com/article/20110412/NEWS0107/104120407/
652. Goldenberg, S. Newspaper. Has BP really cleaned up the Gulf oil spill? April 14, 2011, London, UK. The Guardian. http://www.guardian.co.uk/environment/2011/apr/13/deepwater-horizon-gulf-mexico-oil-spill
653. Walian*, P. J., S. Allen, L. Zeng, E. D. Szakal, H. Liu, S. C. Hall, S. J. Fisher, R. Santos, B. Lam, J. T. Geller, **T. C. Hazen**, J.-M. Chandonia, H. E. Witkowska, M. D. Biggin, and B. K. Jap. Invited. High-Throughput Pipeline for the Purification and Identification of Desulfovibrio vulgaris Membrane Protein Complexes. April 10-13, 2011, Crystal City, VA. Joint Meeting 2011 Genomic Science Awardee Meeting IX and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Meeting, U. S. Department of Energy.
654. Chhabra,*, S., M. Auer, G. Butland, J.-M. Chandonia, **T. C. Hazen**, J. D. Wall, E. Witkowska, D. Elias, M. Adams, M. Fields, J. Liphardt, G. Hura, and D. Stahl. Invited. High Throughput Production and Analysis of Genetically Engineered Desulfovibrio vulgaris Strains via Homologous Recombination. April 10-13, 2011, Crystal City, VA. Joint Meeting 2011 Genomic Science Awardee Meeting IX and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Meeting, U. S. Department of Energy.
655. Chandonia*, J.-M., M. Dong, M. Shatsky, H. Liu, L. Yang, **T. C. Hazen**, J. T. Geller, M. Choi, E. D. Szakal, S. Allen, S. E. Brenner, S. C. Hall, S. J. Fisher, S. Kumar, F. L. Poole, M. Adams, J. Jin, H. E. Witkowska, A. P. Arkin, and M. D. Biggin. Invited. Accurate, High-Throughput Identification of Stable Protein Complexes in Desulfovibrio vulgaris using a Tagless Strategy. April 10-13, 2011, Crystal City, VA. Joint Meeting 2011 Genomic Science Awardee Meeting IX and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Meeting, U. S. Department of Energy.
656. Butland, G. P., S. R. Chhabra, B. Gold, N. L. Liu, S. Reveco, T. R. Juba, J. D. Wall, B. R. Lam, J. T. Geller, **T. C. Hazen**, M. Choi, M. D. Biggin, E. D. Szakal, S. Allen, H. Liu, H. E. Witkowska, and J.-M. Chandonia. Invited. High Throughput Identification of Protein Complexes from Desulfovibrio vulgaris by a Tandem Affinity Purification Pipeline. April 10-13, 2011, Crystal City, VA. Joint Meeting 2011 Genomic Science Awardee Meeting IX and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Meeting, U. S. Department of Energy.
657. Gorur, A., C. M. Leung, S. Chhabra, T. Juba, A. Tauscher, S. Reveco, J. P. Remis, B. Lam, J. T. Geller, **T. C. Hazen**, M. Biggin, J. M. Chandonia, K. H. Downing, J. Wall, and M. Auer*. Invited. Subcellular Localization of Proteins in the Anaerobic Sulfate Reducer *Desulfovibrio vulgaris* via SNAP-Tag Labeling and Photoconversion. April 10-13, 2011, Crystal City, VA. Joint Meeting 2011 Genomic Science Awardee Meeting IX and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Meeting, U. S. Department of Energy.
658. Liu, P., R. J. Meagher, Y. K. Light, S. Yilmaz, R. Chakraborty, A. P. Arkin, **T. C. Hazen**, and A. K. Singh*. Invited. Microfluidic Tools for Single-Cell Genomic Analysis of Environmental Bacteria. April 10-13, 2011, Crystal City, VA. Joint Meeting 2011 Genomic Science Awardee Meeting IX and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Meeting, U. S. Department of Energy.
659. Tu, Q., Y. Deng, Z. He, H. Yu, Y. Qin, A. Zhou, J. Xie, Z. Lu, J. Voordeckers, Y. Lee, K. Xue, J. Van Nostrand, L. Wu, Y. Jiang, **T. C. Hazen**, P. Adams, and J. Zhou*. Invited. Development of Metagenomic Technologies for Analyzing Microbial Communities. April 10-13, 2011, Crystal City, VA. Joint Meeting 2011 Genomic Science Awardee Meeting IX and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Meeting, U. S. Department of Energy.
660. Yoon*, S. H., D. J. Reiss, J. C. Bare, D. Tenenbaum, M. Pan, J. Slagel, S. Lim, M. Hackett, A.-L. Menon, M. W.W. Adams, A. Barnebey, S. M. Yannone, J. A. Leigh, and N. S. Baliga. PI: N. S. Baliga, Co-PIs: J. A. Leigh, M. Hackett, W. Whitman, P. Adams, A. P. Arkin, **T. C. Hazen**, M. W.W. Adams, G. Hura, S. M. Yannone, S. Holbrook, G. Siuzdak, and J. A. Tainer. Invited. Parallel Evolution of Transcriptome Structure During Genome Reorganization. April 10-13, 2011, Crystal City, VA. Joint Meeting 2011 Genomic Science Awardee Meeting IX and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Meeting, U. S. Department of Energy.
661. Hillesland,*, K. L., B. Meyer,* N. Pinel, N. Elliott, M. Joachimiak, J. Kuehl, A. Deutschbauer, A. Zhou, Z. He, J. Zhou, D. Elias, **T. C. Hazen**, A. P. Arkin, and D. A. Stahl*. Invited. Adaptive Evolution and Physiology of Nascent Microbial Mutualisms. April 10-13, 2011, Crystal City, VA. Joint Meeting 2011 Genomic Science Awardee Meeting IX and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Meeting, U. S. Department of Energy.
662. De Leon, K. B., B. D. Ramsay, D. R. Newcomer, B. Faybishenko, **T. C. Hazen**, J. Zhou, and M. W. Fields*. Invited. Microbial Community Dynamics from Groundwater and Surrogate Sediments During HRC® Biostimulation for

Cr(VI)-Reduction. April 10-13, 2011, Crystal City, VA. Joint Meeting 2011 Genomic Science Awardee Meeting IX and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Meeting, U. S. Department of Energy.

663. Chakraborty*, R., D. Joyner, B. A. Faybishenko, M. Fields, T. Torok, G. L. Andersen, and **T. C. Hazen**. Invited. Integrated Microbiological Approaches to Characterize Cr(VI)-Reducing Microbial Community at the DOE Hanford 100H Site. April 10-13, 2011, Crystal City, VA. Joint Meeting 2011 Genomic Science Awardee Meeting IX and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Meeting, U. S. Department of Energy.
664. Mosher, J. J., J. G. Moberly, C. W. Schadt, T. J. Phelps, M. Podar, S. D. Brown, A. V. Palumbo, M. W.W. Adams, D. A. Stahl, K. L. Hillesland, J. D. Wall, M. W. Fields, **T. C. Hazen**, and D. A. Elias*. Invited. Characterization of Naturally Occurring and Model Microbial Communities. April 10-13, 2011, Crystal City, VA. Joint Meeting 2011 Genomic Science Awardee Meeting IX and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Meeting, U. S. Department of Energy.
665. D'Haeseleer, P., J. M. Gladden, A. M. Redding-Johanson, C. J. Petzold, P. I. Benke, M. Allgaier, D. C. Chivian, J. S. VanderGheynst, **T. C. Hazen**, B. A. Simmons, and S. W. Singer. Invited. Metagenomics, Proteomics, and Metabolic Reconstruction of a Thermophilic Feedstock-Adapted Bacterial Community. April 10-13, 2011, Crystal City, VA. Joint Meeting 2011 Genomic Science Awardee Meeting IX and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Meeting, U. S. Department of Energy.
666. DeAngelis, K. M., J. Fortney, S. Borglin, W. Silver, and **T. C. Hazen***. Invited. Feedstock-Adapted Anaerobic Consortia Derived from Tropical Forest Soils. April 10-13, 2011, Crystal City, VA. Joint Meeting 2011 Genomic Science Awardee Meeting IX and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Meeting, U. S. Department of Energy.
667. **Hazen, T. C.** Invited Panel. Panel 1: The Interpretation of Scientific Data for Disaster April 9, 2011, Athens, GA. Response After the Spill: A Dialogue Between Students and Policymakers. Roosevelt Institute, University of Georgia.
668. **Hazen, T. C.** Invited Seminar. Can Mother Nature Take a Punch? - Microbes and the BP Oil Spill in the Gulf of Mexico. April 8, 2011, Athens, GA. Department of Microbiology, University of Georgia.
669. **Hazen, T. C.** Invited Symposium. The Gulf Oil Spill – Ecogenomics and Ecoresilience. Genomics of Energy & Environment. March 22, 2011, Walnut Creek, CA. DOE Joint Genome Institute annual user meeting. http://www.youtube.com/watch?v=pkcNErjG1fk. 114 views
670. Mason*, O. U., T. C. Hazen, P. Chain, E. A. Dubinsky, J. Fortney, J. Han, J. Hultman, R. Lamendella, R. Mackelprang, L. M. Tom, S. G. Tringe, T. Woyke, E. M. Rubin, and J. K. Jansson. Contributed. 'Omics' analyses of the deep-sea microbial community response to the Deepwater Horizon Oil Spill. March 22, 2011, Walnut Creek, CA. DOE Joint Genome Institute annual user meeting.
671. DeAngelis*, K. M., W. L. Silver, and **T. C. Hazen**. Contributed. Anaerobic deconstruction of switchgrass by tropical soil-derived feedstock adapted consortia. March 22, 2011, Walnut Creek, CA. DOE Joint Genome Institute annual user meeting.
672. **Hazen, T.** C. Invited Seminar. Can Mother Nature Take a Punch? - Microbes and the BP Oil Spill in the Gulf of Mexico. March 3, 2011, Orinda, CA. Science Night for Orinda Intermediate School.
673. **Hazen, T.** C. Invited Seminar. Open ocean studies on the Deepwater Horizon oil incident. March 3, 2011, Berkeley. Presentation arranged by the Center for Safe Energy: for the Environment and Energy ministers of the Republic of Kazakhstan.
674. **Hazen, T.** C. Invited Seminar. Open ocean studies on the Deepwater Horizon oil incident. February 23, 2011, Madison, WI. University of Wisconsin.
675. **Hazen, T.** C. Invited Seminar. Open ocean studies on the Deepwater Horizon oil incident. February 21, 2011, West Lafayette, IN. Purdue University Sigma Xi meeting.
676. **Hazen, T.** C. Invited Symposium. Can Mother Nature Take a Punch? - Microbes and the BP Oil Spill in the Gulf of Mexico. February 19, 2011, Washington, DC. AAAS annual meeting.
677. ---------- Radio Show. Bacteria. January 26, 2011, Toronto, Canada. The Current, Canadian Broadcast Company. http://www.cbc.ca/thecurrent/
678. **Hazen, T.** C. Invited Seminar. Can Mother Nature Take a Punch? - Microbes and the BP Oil Spill in the Gulf of Mexico. February 17, 2011, Berkeley, CA. Luncheon Seminar to Ex-LBNL employees.
679. **Hazen, T.** C. Invited Seminar. Can Mother Nature Take a Punch? - Microbes and the BP Oil Spill in the Gulf of Mexico. January 26, 2011, San Francisco, CA. Regional Science Council Seminar Series, EPA region 9.
680. Morrison, J. Magazine Article. Dirty Work. January 15, 2011, http://www.americanwaymag.com/oil-degrading-microbes-terry-hazen. American Way Magazine.
681. Voigt, E. Magazine. Invasion of the Oil-Eating Microbes. January 2011, www.odysseymagazine.com. Odyssey January 2011 pg 16-18.
682. Hulick, K. Magazine. Learning from Disasters Exxon-Valdez vs. Deepwater Horizon. January 2011, www.odysseymagazine.com. Odyssey January 2011 pg 24-26.

683. **Hazen, T.** C. Invited Seminar. Open ocean studies on the Deepwater Horizon oil incident. January 10, 2011, Palo Alto, CA. Stanford University.
684. ---------- Science News. Bacteria devoured methane gas from gulf oil spill, scientists say. January 6, 2011, Berkeley Lab Weekly Media Report. http://berkeleylabreport.blogspot.com/2011/01/bacteria-devoured-methane-gas-from-gulf.html
685. Forrester, M. Science Blog. Study: Undersea bugs ate natural gas released in oil spill. January 6, 2011, WooThemes. http://video-game-schools.freeawx.com/study-undersea-bugs-ate-natural-gas-released-in-oil-spill/
686. Raloff, J. News Magazine. Methane from BP spill goes missing. January 6, 2011, ScienceNews. http://www.sciencenews.org/view/generic/id/68461/title/Methane_from_BP_spill_goes_missing
687. Yong, E. News Article. Bacteria ate up all the methane that spilled from the Deepwater Horizon well. January 6, 2011, Discover Magazine. http://blogs.discovermagazine.com/notrocketscience/2011/01/06/bacteria-ate-up-all-the-methane-that-spilled-from-the-deepwater-horizon-well/
688. Vergano, D. News Article. Study: Undersea bugs ate natural gas released in oil spill. January 6, 2011, USAToday. http://www.usatoday.com/tech/science/environment/2011-01-06-gulf-oil-spill-methane-natural-gas-bacteria_N.htm
689. Hotz, R. L. News Article. Microbes Devoured Methane From BP Spill, Study Says. January 6, 2011, Wall Street Journal. http://online.wsj.com/article/SB10001424052748703730704576065942040672186.html?mod=googlenews_wsj
690. Vastag, B. News Article. Bacteria devoured methane gas from gulf oil spill, scientists say. January 6, 2011, Washington Post. http://www.washingtonpost.com/wp-dyn/content/article/2011/01/06/AR2011010603570.html
691. **Hazen, T. C.** Invited Symposium. Open ocean studies on the Deepwater Horizon oil incident. December 18, 2010, Berkeley, CA. Science@Cal.
692. Vilcaez*, J., L. Li, S. S. Hubbard, and **T. C. Hazen**. Contributed. Biodegradation of Deep-Sea Oil Spill at the Gulf of Mexico: an Estimate of Half Life Time. December 13, 2010, San Francisco, CA. AGU annual meeting.
693. **Hazen, T. C.** Invited Press Conference. Open ocean studies on the Deepwater Horizon oil incident. December 12, 2010, Berkeley, CA. LBNL invited press conference for AGU annual meeting.
694. Dubinsky*, E., G. L. Andersen, M. E. Concord, O. U. Mason, Y. Piceno, W. T. Stringfellow, J. Zhou, and **T. C. Hazen**. Invited Symposium. Response of Petroleum-Degrading Microbial Communities to the Deepwater Horizon Oil Spill at the Surface and in the Deep. November 17, 2010, San Diego, CA. Sustainable Approaches to Remediation of Contaminated Land (SARCL-2010) and Contaminated Site Management (CSM-2010).
695. Borglin*, S., O. U. Mason, E. Dubinsky, J. Fortney, R. Lamendella, D. Joyner, Y. Piceno, and **T. C. Hazen**. Invited Symposium. Analysis of Microbial Community Structure in Crude Oil and Oil Spill Samples Using Phospholipid Fatty Acid Analysis. November 17, 2010, San Diego, CA. Sustainable Approaches to Remediation of Contaminated Land (SARCL-2010) and Contaminated Site Management (CSM-2010).
696. **Hazen, T. C.** Keynote. Open ocean studies on the Deepwater Horizon oil incident. November 17, 2010, Martinez, CA. Contra Costa Watershed Forum.
697. **Hazen, T. C.** Invited Symposium. Open ocean studies on the Deepwater Horizon oil incident. November 12, 2010, Biloxi, MS. Vibrios in the Environment 2010.
698. **Hazen, T. C.** Keynote. The Gulf of Mexico Oil Spill - Rescue from Microbiology? November 9, 2010, Copenhagen, Denmark. Danish Society for Microbiology annual meeting.
699. Singer*, S. W., J. M. Gladden, P. D'haeseleer, M. Allgaier, D. C. Chivian, **T. C. Hazen**, J. S. VanderGheynst, P. Hugenholtz, and B. A. Simmons. Contributed. Targeted Discovery of Enzymes From Enriched Microbial Consortia for High Temperature Saccharification of Ionic-Liquid Pre-Treated Biomass. November 6, 2010, Salt Lake City, UT. American Institute of Chemical Engineers annual meeting.
700. Northen*, T., W. Reindl, K. Deng, J. Gladden, S. Singer, A. Singh, **T. C. Hazen**, B. Simmons, P. Adams, and J. Keasling. Contributed. High Throughput Multiplexed GlycoChip Enzymatic Assays for Biofuels Development. November 6, 2010, Salt Lake City, UT. American Institute of Chemical Engineers annual meeting.
701. **Hazen, T. C.** Invited. Oil Spill Aftermath. November 3, 2010, San Diego, CA. Discover Cal Lecture Series.
702. **Hazen, T.** C. Invited. LBNL Oil Spill Research. November 3, 2010, Berkeley, CA. Town Hall Office of Chief Financial Officer LBNL.
703. **Hazen, T. C.** Invited. Biosciences in Earth Sciences Division. November 2, 2010, Berkeley, CA. LBNL Scientific Advisory Committee.
704. **Hazen, T. C.** Invited. Oil Spill Aftermath. November 1, 2010, San Francisco, CA. Discover Cal Lecture Series.
705. **Hazen, T. C.** R. M. Atlas, D. J. Grimes, J. Spain, and J. M. Suflita. Steering Committee. Microbes and Oil Spills Mini-Colloquium. October 28, 2010, Washington, DC. American Academy of Microbiology.
706. **Hazen, T. C.** Invited. Deep Water Horizon Oil Spill - Intrinsic Bioremediation or Mother Natures' Abilities to Cleanup Our Messes. October 22, 2010, San Francisco, CA. City College of San Francisco.

707. **Hazen, T. C.** Invited. MEHR Program Ecogenomics Core Review. October 22, 2010, Berkeley, CA. Energy Biosciences Institute, University of California at Berkeley.
708. Grimes*, D. J., **T. C. Hazen**, and S. McLellan. Invited. Marine Bioremediation: The Microbial Response to the Deepwater Horizon Incident. October 10, 2010, Qingdao, China. International Marine Biotechnology Convention 2010.
709. **Hazen, T. C.** Invited. Deep-Sea Oil Plume Enriches Indigenous Oil-Degrading Bacteria. October 8, 2010, Berkeley, CA. Civil and Environmental Engineering, University of California at Berkeley.
710. **Hazen, T. C.** Invited Keynote. Deep-Sea Oil Plume Enriches Indigenous Oil-Degrading Bacteria. October 7, 2010, Albany, CA. Northern California Science Writers Association Dinner.
711. **Hazen, T. C.** Invited. Deep-Sea Oil Plume Enriches Indigenous Oil-Degrading Bacteria. October 2, 2010, Berkeley, CA. LBNL Open House.
712. **Hazen, T. C.** Invited. Deep-Sea Oil Plume Enriches Indigenous Oil-Degrading Bacteria. September 29, 2010, Houston, TX. BP Deep Sea Oil Release Water Column Meeting.
713. **Hazen, T. C.** Invited. Deep-Sea Oil Plume Enriches Indigenous Oil-Degrading Bacteria. September 27, 2010, Washington, DC. National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling. https://www.c-span.org/person/?terryhazen/
714. **Hazen, T. C.** Invited. Ecogenomics and biogeochemistry enables understanding of the Deepwater Horizon disaster in the Gulf of Mexico. September 20, 2010, Granada, Spain. University of Granada.
715. Joyner*, D. C., **Hazen, T. C.** Invited. Phenotypic MicroArray for bioenergy applications. September 13-15, 2010, Florence, Italy. Florence Conference on Phenotype Microarray Analysis of Microorganisms.
716. **Hazen, T. C.** Invited. Phenotypic MicroArray for bioenergy applications. September 13-15, 2010, Florence, Italy. Florence Conference on Phenotype Microarray Analysis of Microorganisms.
717. **Hazen, T. C.** Invited. The Gulf of Mexico Oil Spill. September 13-15, 2010, Florence, Italy. Florence Conference on Phenotype Microarray Analysis of Microorganisms.
718. ---------. **Hazen** et. al. Deep-sea oil plume enriches psychrophilic oil-degrading bacteria. August 27, 2010. Science Magazine Podcast http://podcasts.aaas.org/science_podcast/SciencePodcast_100827.mp3
719. **Hazen, T.** C. Invited Radio Broadcast. Undersea oil-eating bacteria. August 27, 2010. NPR Science Friday. http://www.sciencefriday.com/program/archives/201008275
720. **Hazen, T. C.** Convener. Microbial ecology of the 2010 Deepwater Horizon Oil Spill. August 22-27, 2010, Seattle, WA. ISME 13 – 13th International Symposium on Microbial Ecology.
721. **Hazen, T. C.** Invited. The Spill and Ecogenomics. August 22-27, 2010, Seattle, WA. ISME 13 – 13th International Symposium on Microbial Ecology.
722. DeAngelis*, K. M., M. Allgaier, P. D'haeseleer, J. L. Fortney, P. Hugenholtz, B. Simmons, and **T. C. Hazen**. Contributed. Analysis of anaerobic lignocellulose decomposing consortia from Puerto Rico tropical forest soils. August 22-27, 2010, Seattle, WA. ISME 13 – 13th International Symposium on Microbial Ecology.
723. De Leon*, K., D. Newcomer, B. Faybishenko, B. Ramsay, **T. C. Hazen**, and M. Fields. Contributed. Microbial community dynamics from groundwater and surrogate sediments during HRC® stimulation at a chromium contaminated field site. August 22-27, 2010, Seattle, WA. ISME 13 – 13th International Symposium on Microbial Ecology.
724. Allgaier*, M., A. Reddy, J. I. Park, N. Ivanova, P. D'haeseleer, S. Lowry, R. Sapra, **T. C. Hazen,** B. A. Simmons, J. S. VanderGheynst, and P. Hugenholtz. Contributed. Targeted discovery of glycoside hydrolases from a switchgrass-adapted compost microbial community. August 22-27, 2010, Seattle, WA. ISME 13 – 13th International Symposium on Microbial Ecology.
725. Van Nostrand*, J., P. Waldron, D. Watson, Z. He, L. Wu, P. Jardine, **T. C. Hazen**, and J. Zhou. Contributed. Geochip-based analysis of groundwater microbial communities across a gradient of pH, heavy metal, and nitrate contamination. August 22-27, 2010, Seattle, WA. ISME 13 – 13th International Symposium on Microbial Ecology.
726. Zhang*, P., W. Wu, J. Van Nostrand, Y. Deng, Z. He, T. Gihring, G. Zhang, C. Schadt, D. Watson, P. Jardine, S. Brooks, T. Marsh, J. Tiedje, **T. C. Hazen**, and J. Zhou. Contributed. Microarray-based characterization of microbial community functional structure during in situ biostimulation at a uranium-contaminated aquifer. August 22-27, 2010, Seattle, WA. ISME 13 – 13th International Symposium on Microbial Ecology>
727. Martinez*, R., M. Beazley, C. Wu, G. Andersen, **T. C. Hazen**, M. Taillefert, and P. Sobecky. Contributed. Microbial phosphatase activity involved in subsurface uranium sequestration. August 22-27, 2010, Seattle, WA. ISME 13 – 13th International Symposium on Microbial Ecology.
728. Chakraborty*, C., J. Fortney, A. Zhou, M. Joachimiak, A. Mukhopadhyay, S. Borglin, Z. He, A. P. Arkin, J. Zhou, and **T. C. Hazen**. Contributed. Investigation of osmotic stress response in the anaerobic metal-reducing microbe *Geobacter metallireducens*, strain GS -15. August 22-27, 2010, Seattle, WA. ISME 13 – 13th International Symposium on Microbial Ecology.

729. Goodheart*, D. B., W. L. Silver, **T. C. Hazen**, and M. K. Firestone. Contributed. The Diversity and Activity of Methanogens in a Wet, Tropical Forest during Plant Decomposition. Contributed. Lactate enrichment of uranium and chromium contaminated Hanford groundwater samples. August 22-27, 2010, Seattle, WA. ISME 13 – 13th International Symposium on Microbial Ecology.
730. Mosher*, J. J., M. M. Drake, S. L. Carroll, Z. K. Yang, C. W. Schadt, S. D. Brown, M. Podar, **T. C. Hazen**, A. P. Arkin, T. J. Phelps, A. V. Palumbo, B. A. Faybishenko, and D. A. Elias. Contributed. Lactate enrichment of uranium and chromium contaminated Hanford groundwater samples. August 22-27, 2010, Seattle, WA. ISME 13 – 13th International Symposium on Microbial Ecology.
731. Mason*, O., A. Iavarone, L. Tom, S. Borglin, R. Chakraborty, **T. C. Hazen**, and J. Jansson. Contributed. Pressure assisted "omics" analyses of resident microbes in petroleum reservoirs. August 22-27, 2010, Seattle, WA. ISME 13 – 13th International Symposium on Microbial Ecology.
732. Mason*, O. U., A. Probst, E. Dubinsky, Y. Piceno, L. Tom, J. Fortney, R. Lamendella, **T. C. Hazen**, and J. Jansson. Contributed. The microbial community of a dispersed, deep-sea oil plume. August 22-27, 2010, Seattle, WA. ISME 13 – 13th International Symposium on Microbial Ecology.
733. Singer, S., J. Gladden, M. Allgaier, A. Reddy, J. VanderGheynst, **T. C. Hazen**, P. Hugenholtz, P. D'haeseleer, B. Simmons. Contributed. Targeted enzyme discovery in thermophilic feedstock-adapted microbial communities using proteogenomic and biochemical techniques. August 22-27, 2010, Seattle, WA. ISME 13 – 13th International Symposium on Microbial Ecology.
734. Dubinsky, E., T. DeSantis*, Y. Piceno, O. Mason, N. Singh, A. Probst, D. Joyner, R. Chakraborty, **T. C. Hazen**, G. Andersen. Contributed. Phylochip assay finds deepwater oil plume enrichment of psychrophilic oil-degrading bacteria. August 22-27, 2010, Seattle, WA. ISME 13 – 13th International Symposium on Microbial Ecology.
735. Wu*, C. H., E. A. Dubinsky, J. Hulls, S. R. Osman, **T. C. Hazen**, and G. L. Andersen. Contributed. Temporal dynamics of cattle and human fecal microbial communities in fresh and marine waters. August 22-27, 2010, Seattle, WA. ISME 13 – 13th International Symposium on Microbial Ecology.
736. Wells*, G. F., C. H. Wu, Y. M. Piceno, B. Eggleston, E. L. Brodie, T. Z. DeSantis, G. L. Andersen, **T. C. Hazen**, C. A. Francis, and C. S. Criddle. Contributed. Immigration as a driver of microbial community structure: sloughing from a biofilm bioreactor is linked to downstream-activated sludge community dynamics. August 22-27, 2010, Seattle, WA. ISME 13 – 13th International Symposium on Microbial Ecology.
737. Gupta, S. News Magazine. Gulf spill: Is the oil lurking underwater? August 20, 2010. New Scientist. http://www.newscientist.com/article/dn19345-gulf-spill-is-the-oil-lurking-underwater.html
738. **Hazen, T. C.** Invited. Gulf spill biodegradation rates and ecogenomics. August 19, 2010, Teleconference. NOAA National Science Response Team.
739. **Hazen, T. C.** Invited. Systems Biology: The New Frontier for Environmental Biotechnology. August 11, 2010, Berkeley, CA. Army Sponsored Microbial Data Integration Workshop.
740. Wurth, J. Newspaper. Professor's expertise might help with cleanup of future oil spills. August 8, 2010. Urbana-Champaign, IL. The News Gazette. http://www.news-gazette.com/news/environment/2010-08-08/professors-expertise-might-help-cleanup-future-oil-spills.html
741. …….. News Blog. BP Watch: Hiding the oil. August 7, 2010. http://www.thepoliticalcarnival.net/2010/08/bp-watch-hiding-the-oil/
742. **Hazen, T. C.** Invited. Gulf spill biodegradation rates and ecogenomics. August 6, 2010, Teleconference. National Incident Response JAG.
743. ……. News Blog. Gulf oil spill: White House accused of spinning report. August 5, 2010. http://online-stocktrading.com/gulf-oil-spill-white-house-accused-of-spinning-report.html
744. Goldenberg, S. News Blog. Gulf oil spill: White House accused of spinning report. August 5, 2010. London, UK. Guardian. http://www.guardian.co.uk/environment/2010/aug/05/oil-spill-white-house-accused-spin
745. The Medical Muckraker. News Blog. Did oil-gobbling bacteria rid the Gulf of BP's submarine oil plumes? August 4, 2010. http://medicalmuckraker.wordpress.com/2010/08/04/did-oil-gobbling-bacteria-rid-the-gulf-of-bps-submarine-oil-plumes/
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748. Dubinsky*, E. A., G. L. Andersen, M. E. Conrad, O. U. Mason, Y. M. Piceno, W. T. Stringfellow, J. Zhou, and **T. C. Hazen.** Invited. Response of petroleum-degrading microbial communities to the Deepwater Horizon oil spill at the surface and in the deep. August 2-5, 2010, San Francisco, CA. Annual Meeting of the Society for Industrial Microbiology.

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750. Mason*, O. U., E. A. Dubinsky, Y. M. Piceno, A. T. Iavarone, L. M. Tom, **T. C. Hazen,** and J. K. Jansson. Invited. "Omics" analyses of resident microbes in extreme environments such as petroleum reservoirs and deep sea oil plumes. August 2-5, 2010, San Francisco, CA. Annual Meeting of the Society for Industrial Microbiology.
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752. Woo*, H. L., K. M. DeAngelis, **T. C. Hazen**, and B. A. Simmons. Contributed. Isolation of lignin- and cellulose-degrading bacteria from tropical soils for biofuel feedstock deconstruction. August 2-5, 2010, San Francisco, CA. Annual Meeting of the Society for Industrial Microbiology.
753. **Hazen, T. C.** Invited Symposium. Environmental Microbiology – Deconstruction Ecogenomics for Biofuels. August 2-5, 2010, San Francisco, CA. Annual Meeting of the Society for Industrial Microbiology.
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762. **Hazen, T. C.** Invited. Gulf Oil Spill, Update. June 29, 2010, Berkeley, CA. LBNL Earth Sciences Division Town Hall meeting.
763. **Hazen, T. C.** Invited. Forum on BP Oil Disaster. June 23, 2010, Walnut Creek, CA. Mt. Diablo Peace & Justice Center.
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773. Joachimiak, M. P., R. Chakraborty, A. Zhou, J. L. Fortney, J. T. Geller, Z. He, J. Wall, J. Zhou, A. P. Arkin, **T. C. Hazen**, J. D. Keasling and S. R. Chhabra*. Contributed. Revisiting modes of energy generation in sulfate reducing bacteria. May 23-27, 2010, San Diego, CA. Annual meeting of the American Society for Microbiology Meeting.

774. Mosher*, J. J., M. M. Drake, S. L. Carroll, Z. K. Yang, C. W. Schadt, S. D. Brown, M. Podar, **T. C. Hazen**, A. P. Arkin, T. J. Phelps, A. V. Palumbo, B. A. Faybishenko, and D. A. Elias. Contributed. Microbial community dynamics of lactate enriched Hanford groundwaters. May 23-27, 2010, San Diego, CA. Annual meeting of the American Society for Microbiology Meeting.
775. Joachimiak*, M., R. Chakraborty, A. Zhou, J. L. Fortney, Z. He, P. Dehal, M. R. Price, J. Wall, J. Zhou, A. P. Arkin, **T. C. Hazen,** J. D. Keasling, and S. R. Chhabra. Contributed. A revised bioenergetic model of Desulfovibrio vulgaris strain Hildenborough. May 23-27, 2010, San Diego, CA. Annual meeting of the American Society for Microbiology Meeting.
776. DeAngelis*, K. M., M. Allgaier, Y. Chavarria, J. Fortney, P. Hugenholtz, B. Simmons, K. Sublette; W. L. Silver, and **T. C. Hazen**. Contributed. Trapping Lignin Degrading Microbes in Tropical Forest Soil. May 23-27, 2010, San Diego, CA. Annual meeting of the American Society for Microbiology Meeting.
777. Fortney*, J. L., K. M. DeAngelis, Y. Chavarria, W. Silver, and **T. C. Hazen**. Contributed. Anaerobic feedstock-adapted consortia and isolates from Puerto Rico tropical forest soils. May 23-27, 2010, San Diego, CA. Annual meeting of the American Society for Microbiology Meeting.
778. Piceno*, Y. M., D. Venkateswaran, L. Tom, S. Chaudhuri, M. Vu, **T. C. Hazen**, R. Chakraborty, G. L. Andersen. Contributed. Optimization of extraction techniques for microbial community analysis of MEOR samples. May 23-27, 2010, San Diego, CA. Annual meeting of the American Society for Microbiology Meeting.
779. Joyner*, D. C., J. L. Fortney, R. Chakraborty, and **T. C. Hazen.** Contributed. Adaptation the Biolog OmniLog Phenotype MicroArray plate technology to profile the strict metal reducing anaerobe *Geobacter metallireducens.* May 23-27, 2010, San Diego, CA. Annual meeting of the American Society for Microbiology Meeting.
780. Chakraborty*, R., E. L. Brodie, B. Faybishenko, Y. M. Piceno, L. Tom, S. Choudhuri, H. R. Beller, J. Liu, T. Torok, D. C. Joyner , P. E. Long, D. R. Newcomer, G. L. Andersen, and **T. C. Hazen**. Contributed. Microbial community changes during sustained Cr(VI) reduction at the 100H site in Hanford, WA. May 23-27, 2010, San Diego, CA. Annual meeting of the American Society for Microbiology Meeting.
781. Geller*, J. T., S. E. Borglin, J. L. Fortney, B. R. Lam, **T. C. Hazen**, and Mark D. Biggin. Contributed. Large-Scale, Continuous-Flow Production of Stressed Biomass (Desulfovibrio vulgaris Hildenborough). May 23-27, 2010, San Diego, CA. Annual meeting of the American Society for Microbiology Meeting.
782. Woo*, H. L., K. M. DeAngelis, **T. C. Hazen**, and B. A. Simmons. Contributed. Isolation of Aerobic Lignin- and Cellulose- degrading Bacteria from Tropical Soils from Biofuel Feedstock Deconstruction. May 23-27, 2010, San Diego, CA. Annual meeting of the American Society for Microbiology Meeting.
783. Liu*, H., M. Dong, L. L Yang, E. D Szakal, S. Allen, S. C. Hall, S. J. Fisher, **T. C. Hazen**, J. T. Geller, M. E Singer, J. Jin, M. D. Biggin, and H. E. Witkowska. Contributed. Development and Refinement of an iTRAQ-Based "Tagless" Strategy for High-Throughput Purification and Identification of Soluble Protein Complexes. May 23-27, 2010, Salt Lake City, UT. 58th ASMS Conference on Mass Spectrometry.
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814. Singer*, S. W., J. M. Gladden, M. Allgaier, A. P. Reddy, J. S. VanderGheynst, **T. C. Hazen**, B. A. Simmons, and P. Hugenholtz. Contributed. Targeted Enzyme Discovery in Thermophilic Feedstock-adapted Microbial Communities. April 19-22, 2010, Clearwater, FL. 32nd Symposium on Biotechnology for Fuels and Chemicals.
815. Reddy*, A. P., M. Allgaier, J. M. Gladden, S. W. Singer, P. Hugenholtz, B. A. Simmons, **T. C. Hazen**, and J. S. VanderGheynst. Contributed. Characterization of the activity of thermophilic microbial communities on bioenergy feedstocks. April 19-22, 2010, Clearwater, FL. 32nd Symposium on Biotechnology for Fuels and Chemicals.
816. Hubbard*, S. S., J. Ajo-Franklin, H. Beller, E. Brodie, J. Chen, J. Christensen, M. Conrad, D. DePaolo, B. Faybishenko, S. Finsterle, **T. C. Hazen**, M. Kowalsky, E. Sonnenthal, N. Spycher, C. Steefel, T. Tokunaga, J. Wan, K. Williams, Y. Wu, M. Denham, Y. Fujita, L. Li, and P. Long. Invited. Overview of the LBNL Sustainable Systems SFA. March 28-31, 2010, Washington, DC. Subsurface Biogeochemical Research (SBR) Contractor-Grantee Workshop.
817. Zhang*, P., W. Wu, J. D. Van Nostrand, Y. Deng, Z. He, T. Gihring, G. Zhang, C. W. Schadt, D. Watson, P. Jardine, S. Brooks, T. L. Marsh, J. M. Tiedje, **T. C. Hazen**, and J. Zhou. Invited. Geochip-based analysis of metabolic diversity of microbial communities during in situ biostimulation at a uranium-contaminated aquifer. March 28-31, 2010, Washington, DC. Subsurface Biogeochemical Research (SBR) Contractor-Grantee Workshop.
818. Christensen*, J. N., E. Sonnenthal, S. T. Brown, M. E. Conrad, L. Yang, S. Mukhopadhyay, C. I. Steefel, B. Faybishenko, and **T. C. Hazen**. Invited. Using Cr Isotopic Measurements Together with Reactive Transport Modeling to Monitor Stimulated Bio-containment at the 100H Test Site, Hanford, Washington. March 28-31, 2010, Washington, DC. Subsurface Biogeochemical Research (SBR) Contractor-Grantee Workshop.
819. **Hazen, T. C.** Invited. Ecogenomics with MicrobesOnline and KnowledgeBase. March 28-31, 2010, Washington, DC. Subsurface Biogeochemical Research (SBR) Contractor-Grantee Workshop.
820. **Hazen, T. C.** and P. Bayer. Moderators. Systems Environmental Microbiology: Innovative Approaches to Understand Cellular and Microbial Community Activity and Function. March 28-31, 2010, Washington, DC. Subsurface Biogeochemical Research (SBR) Contractor-Grantee Workshop.
821. **Hazen, T.** C. Invited. A Systems Biology Approach to the Environment Using Ecogenomics. March 2010, Berkeley, CA. Earth Sciences Division Review.
822. Reddy*, A. P., M. Allgaier, J. M. Gladden, S. Singer, P. Hugenholtz, B. Simmons, **T. C. Hazen**, and J. S. VanderGheynst. Contributed. Enrichment of highly efficient thermophilic microbial communities active on switchgrass and corn stover in a high-solids environment. March 21-25, 2010, San Francisco, CA. 239th ACS National Meeting & Exposition.

823. Byrne-Bailey, K. G., K. C. Wrighton, R. A. Melnyk, **T. C. Hazen**, and J. D. Coates. Invited. The First Genome Sequence of a Gram-Positive Bacterium Isolated from a Microbial Fuel Cell: *Thermincola potens* strain JR. March 2010, Walnut Creek, CA. Joint Genome Institute Users Meeting.
824. Holman, H.-Y., E. Wozei, L. R. Comolli, S. A. Ball, S. E. Borglin, M. W. Fields, **T. C. Hazen**, and K. H. Downing. Invited. Real-Time monitoring of Chemical Environment in Cells during Stress-Adaptive Response. February 2010, Washington, DC. Genomics:GTL Contractor-Grantee Workshop VIII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2010.
825. Arkin, A. P., E. Baidoo, K. Bender, P. I. Benke, A. Deutschbauer, M. Fields, **T. C. Hazen**, Z. He, D. C. Joyner, J. Keasling, K. Keller, E. G. Luning, A. Mukhopadhyay, L. Rajeev, J. Ray, J. D. Wall, G. Zane, A. Zhou, and J. Zhou. Invited. Laboratory models for the study of community interaction, functional stability, and survival. February 2010, Washington, DC. Genomics:GTL Contractor-Grantee Workshop VIII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2010.
826. Arkin, A. P., E. Baidoo, P. Dehal, D. Elias, M. Fields, J. Geller, **T. C. Hazen**, Z. He, K. Hillesland, J. Keasling, K. Keller, M. Keller, L. Krumholz, B. Meyer, L. Miller, J. Mosher, A. Mukhopadhyay, A. Palumbo, T. Phelps, M. Podar, L. Rajeev, A. Redding, C. Schadt, D. Stahl, S. Stolyer, A. Venkateswaren, C. Walker, J. Wall, Z. Yang, G. Zane, A. Zhou, and J. Zhou. Invited. Laboratory models for the study of community interaction, functional stability, and survival. February 2010, Washington, DC. Genomics:GTL Contractor-Grantee Workshop VIII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2010.
827. Ball, D. A., S. Chhabra, D. Elias, V. Fok, J. T. Geller, A. Gorur, **T. C. Hazen**, D. Jorgens, T. Juba, A. Leung, J. Remis, m. E. Singer A. Tauscher, J. Wall, M. Auer, and K. H. Downing. Invited. Towards localization of functionality in *Desulfovibrio vulgaris* by electron microscopy. February 2010, Washington, DC. Genomics:GTL Contractor-Grantee Workshop VIII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2010.
828. Van Nostrand, J. D., L. Wu, P. Waldron, P. Zhang, Y. Deng, Z. He, W. Wu, S. Carroll, C. Schadt, A. Palumbo, D. Watson, C. Criddle, P. Jardine, **T. C. Hazen**, and J. Zhou. Invited. Applications of GeoChip for analysis of different microbial communities. February 2010, Washington, DC. Genomics:GTL Contractor-Grantee Workshop VIII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2010.
829. Han, B. G., H. Liu, M. Dong, M. Shatsky, S. E. Brenner, P. Arbelaez, J. Malik, D. Typke, **T. C. Hazen**, J. T. Geller, H. J. Sterling, L. Yang, M. Choi, E. D. Szakal, S. Allen, S. C. Hall, Susan J. Fisher, E. R. Williams, J.-M. Chandonia, J. Jin, H. E. Witkowska, R. M. Glaeser, M. D. Biggin. Invited. High Throughput Identification, Purification and Structural Characterization of Soluble Protein Complexes in *Desulfovibrio vulgaris.* February 2010, Washington, DC. Genomics:GTL Contractor-Grantee Workshop VIII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2010.
830. Walian, P. J., S. Allen, L. Zeng, E. Szakal, E. Johansen, H. Liu, S. C. Hall, S. J. Fisher, M. E. Singer, J. T. Geller, S. Lin, **T. C. Hazen**, H. E. Witkowska, M. D. Biggin, and B. K. Jap. Invited. Pipeline for Large-scale Purification and Identification of *Desulfovibrio vulgaris* Membrane Protein Complexes. February 2010, Washington, DC. Genomics:GTL Contractor-Grantee Workshop VIII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2010.
831. **Hazen, T. C.**, G. Anderson, S. Borglin, E. Brodie, S. van Dien, M. Fields, J. Fortney, J. Geller, E. Hendrickson, K. L Hillesland, H.-Y. Holman, J. Leigh, T. Lie, D. Joyner, R. Chakraborty, D. Elias, A. Mukhopadhyay, C. Schadt, D. Stahl, S. Stolyar, C. Walker, J. Wall, Z. Yang, H.-C. Yen, G. Zane, J. Zhou. Invited. Environmental Microbiology Core Research on Stress Response Pathways in Metal-Reducers ENIGMA:VIMSS:ESPP. February 2010, Washington, DC. Genomics:GTL Contractor-Grantee Workshop VIII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2010.
832. Gladden*, J. M., A. M. Reddy, J. S. VanderGheynst, **T. C. Hazen**, B. A. Simmons, P. Hugenholtz, and S. W. Singer. Invited. Targeted enzyme discovery in feedstock-adapted microbial communities. February 2010, Washington, DC. Genomics:GTL Contractor-Grantee Workshop VIII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2010.
833. Chhabra, S., G. Butland, D. Elias, S. Reveco, V. Fok, B. Gold, T. Juba, J.-M. Chandonia1, E. Witkowska, **T. C. Hazen**, J. Wall, and J. Keasling. Invited. Protein Complex Analysis Project (PCAP): Large-scale identification of protein-protein interactions in *Desulfovibrio vulgaris* using tandem-affinity purification. February 2010, Washington, DC. Genomics:GTL Contractor-Grantee Workshop VIII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2010.
834. DeAngelis, K. M., M. Allgaier, W. L. Silver, Y. Chavarria, J. Fortney. P. Hugenholtz, B. Simmons, K. Sublette, and **T. C. Hazen**. Invited. Trapping lignin-degrading microbes in tropical forest soil. February 2010, Washington, DC. Genomics:GTL Contractor-Grantee Workshop VIII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2010.

835. **Hazen, T. C.** Invited. Systems Biology (Integration of the Omics, Bioinformatics, and Biogeochemistry): The New Frontier for Environmental Biotechnology. January 2010, Changsha, China. Central South China University.
836. **Hazen, T. C.** Invited. Life in the Slow Lane: Ecogenomics in Extreme Environments - Implications for Enhanced Oil Recovery. January 2010, Harbin, China. Harbin Institute of Technology.
837. **Hazen, T. C.** Invited. Systems Biology (Integration of the Omics, Bioinformatics, and Biogeochemistry): The New Frontier for Environmental Biotechnology. January 2010, Harbin, China. Harbin Institute of Technology.
838. **Hazen, T. C.** Invited. Targeted Enzyme Discovery using Metagenomics. January 2010, Harbin, China. Harbin Institute of Technology.
839. **Hazen, T. C.** Invited Chair. Environmental Remediation and Confirmatory Monitoring IV. December 2009, San Francisco, CA. American Geophysical Union Annual Meeting.
840. **Hazen, T. C.** Invited Chair. Environmental Remediation and Confirmatory Monitoring III. December 2009, San Francisco, CA. American Geophysical Union Annual Meeting.
841. **Hazen, T. C.** Invited Chair. Environmental Remediation and Confirmatory Monitoring II. December 2009, San Francisco, CA. American Geophysical Union Annual Meeting.
842. Faybishenko*, B. and **T. C. Hazen.** Contributed. Multiple Factor Analysis and k-Means Clustering-Based Classification of the DOE Groundwater Contaminant Database. December 2009, San Francisco, CA. American Geophysical Union Annual Meeting.
843. **Hazen, T. C.**, E. Sonnenthal, S. Mukhopadhyay, C. Steefel, P. Long, and B. Faybishenko*. Contributed. Field and Numerical Modeling Study of Reductive Bioimmobilization of Cr (VI) in Groundwater at Hanford 100-H Site. December 2009, San Francisco, CA. American Geophysical Union Annual Meeting.
844. **Hazen, T. C.**, B. Faybishenko, and P. Jordan. Invited. Characterization of a Contaminant Inventory at DOE Sites, as a Tool for Selecting Monitoring and Remediation Technologies. December 2009, San Francisco, CA. American Geophysical Union Annual Meeting.
845. Chakraborty, R., E. L Brodie, D. C Joyner, T. Torok, J. L Fortney, S. E Borglin, P. E Long, D. R Newcomer, S. Choudhuri, H. R Beller, Y. M Piceno, L. Tom, G. L Andersen, B. Faybishenko, and **T. C. Hazen.** Contributed. Microbial community changes during sustained Cr(VI) reduction at the 100H site in Hanford, WA. December 2009, San Francisco, CA. American Geophysical Union Annual Meeting.
846. Wu*, C. H., B. R. Lam, J. Chou, M. Bill, J. Henriksen, K. E. Wright, E. L. Brodie, G. L. Andersen, **T. C. Hazen,** Y. Fujita, and M. E. Conrad. Contributed. Microbial metabolism of triethylphosphate, a potential phosphate source for radionuclide mineralization. December 2009, San Francisco, CA. American Geophysical Union Annual Meeting.
847. Christensen, J. N., E. L. Sonnenthal, S. T. Brown, M. E. Conrad, L. Yang, S. Mukhopadhyay, C. I. Steefel, B. Faybishenko, and **T. C. Hazen**. Contributed. Using Cr Isotopic Measurements with Reactive Transport Modeling to Monitor Stimulated Bio-containment at the 100H Test Site, Hanford, Washington. December 2009, San Francisco, CA. American Geophysical Union Annual Meeting.
848. Martinez*, R. J., K. Salome, C. W., **T. C. Hazen**, G. L. Andersen, M. Taillfert, and P. A. Sobecky. Contributed. Uranium Immobilization by the Activities of Microbial Phosphatases. October 2009, Portland, OR. Geological Society of America Annual Meeting.
849. -------. News. New Biosafety Committee Chair Appointed. November 19, 2009, Berkeley, CA. Today at Berkeley Lab.
850. **Hazen, T. C.** Newsletter. MEHR: Tiny Organisms, Big Jobs Deep Underground. November 2009, Berkeley, CA. The EBInsider, Energy Biosciences Institute.
851. **Hazen, T. C.** Newsletter. New Biosafety Committee Chair Appointed. 19 November 2009, Berkeley, CA. Today at Berkeley Lab (http://www.lbl.gov/publicinfo/newscenter/tabl/)
852. **Hazen, T. C.** Invited. Life in the Slow Lane: Ecogenomics in Extreme Environments - Implications for Enhanced Oil Recovery. October 2009, Berkeley, CA. University of California at Berkeley, Energy Biosciences Institute Seminar.
853. Dubinsky, E., C. Wu, J. Hulls, **T. C. Hazen**, and G. L. Andersen. Contributed. A complete microbial community approach to tracking fecal pollution in coastal waters. September 2009, San Francisco, CA. 9th Biennial State of the San Francisco Estuary Conference.
854. **Hazen, T. C.**, and G. L. Andersen. Invited. LBNL September 2009, Washington, DC. Science and Technology, U. S. Department of Homeland Security.
855. **Hazen, T. C.** Newsletter. MEHR: ENLISTING MICROBES IN EFFORTS TO ACCESS 'LOST' ENERGY. July 2009, Berkeley, CA. The EBInsider, University of California at Berkeley (http://www.lbl.gov/publicinfo/newscenter/tabl/2009/august/08-07-09/EBInsiderJuly09Web.pdf)
856. **Hazen, T. C.** and B. A. Simmons. Invited Symposia. Systems Biology Approaches to Environmental Microbial Adaptations for Bioenergy Products. July 2009, Toronto, Canada. Society for Industrial Microbiology Annual Meeting.

857. DeAngelis, K., W. Silver, P. D'Haeseleer, J. Fortney, M. K. Firestone, and **T. C. Hazen**. Invited. Puerto Rico tropical forest soils as reservoirs for novel lignocellulolytic enzymes and organisms. July 2009, Toronto, Canada. Society for Industrial Microbiology Annual Meeting.
858. **Hazen, T. C.** Invited. Systems Biology (Integration of the Omics, Bioinformatics, and Biogeochemistry): The New Frontier for Environmental Biotechnology. July 2009, Granada, Spain. Master Universitario in Biotecnologia, University of Granada.
859. **Hazen, T. C.** Invited. EBI Microbial Enhanced Hydrocarbon Recovery. June 2009, Urbana/Champagne, IL. Energy Biosciences Institute Annual Retreat.
860. **Hazen, T. C.**, B. K. Fouke, and J. D. Coates. Contributed. EBI Microbial Enhanced Hydrocarbon Recovery. June 2009, Urbana/Champagne, IL. Energy Biosciences Institute Annual Retreat.
861. Skerker, J., A. Deutschbauer, P. Novichkov, A. Gerasimova, J. Mar, K. Wetmore, J. Baumohl, M. Price, P. Dehal, J. Kuehl, C. Wu, I. Dubchak, **T. C. Hazen**, A. P. Arkin. Invited. An idiosyncratic view of Fuel Synthesis Challenges. June 2009, Urbana/Champagne, IL. Energy Biosciences Institute Annual Retreat.
862. Skerker, J., A. Deutschbauer, J. Mar, K. Wetmore, M. Price, P. Dehal, J. Baumohl, I. Dubchak, **T. C. Hazen**, A. P. Arkin. Contributed. A systems biology approach for optimizing biofuel production in *Zymomonas mobilis*. June 2009, Urbana/Champagne, IL. Energy Biosciences Institute Annual Retreat.
863. Dubinsky, E.A., C. Wu, S. Osman, J. Hulls, **T. C. Hazen**, G. L. Andersen. A complete microbial community approach to monitoring and source tracking coastal-zone pollution. U.S. EPA National Beach Conference. April 2009, Huntington Beach, CA.
864. **Hazen, T. C.** Invited. Life in the Slow Lane: Ecogenomics of an Extreme Environment. June 2009, Uppsala, Sweden. BAGECON 10 International Conference.
865. **Hazen, T. C.** Invited. Metagenomics of Soil Rain Forest. June 2009, Uppsala, Sweden. Terragenome Workshop.
866. Faybishenko*, B., **T. C. Hazen**, and S. S. Hubbard. Invited. Application of Innovative Bioremediation Technologies for Metals and Radionuclides in Soils and Groundwater. May 2009, Astana, Kazakhstan. IAEA International Conference on Remediation of Land Contaminated by Radioactive Material Residues.
867. Zhou*, J., and **T. C. Hazen***. Invited co-convener. High Throughput Genomic Technologies for Complex Microbial Community Analysis. May 2009, Philadelphia, PA. Annual meeting of the American Society for Microbiology Meeting.
868. He, Z., Y. Deng, J. D. Van Nostrand, L. Wu*, C. L. Hemme, T. J. Gentry, J. Liebich, Q. Tu, A. P. Arkin, **T. C. Hazen**, and J. Zhou. Contributed. Development and Applications of GeoChip 3.0 for Analysis of Microbial Community Structures, Compositions, and Potential Functions. May 2009, Philadelphia, PA. Annual meeting of the American Society for Microbiology Meeting.
869. Zhou, A., Z. He, G. M. Zane, C. Hemme, Y. Chen*, A. P. Arkin, **T. C. Hazen**, J. D. Wall, and J. Zhou. Contributed. Study of Global Gene Regulation by CRP/FNR in *Desulfovibrio vulgaris* Hildenborough. May 2009, Philadelphia, PA. Annual meeting of the American Society for Microbiology Meeting.
870. Elias*, D. A., M. Auer, M. D. Biggin, G. Butland, S. Chhabra, A. Fagorala, **T. C. Hazen**, D. Jorgans, D. C. Joyner, T. R. Juba, M. Perez, J. P. Remis, A. Tauscher, and J. D. Wall. Contributed. Protein Complex Analysis Project (PCAP): Localization of Multi-Protein Complexes through SNAP-Tag Labeling. May 2009, Philadelphia, PA. Annual meeting of the American Society for Microbiology Meeting.
871. Kang*, S., H. L. Gough, J. Van Nostrand, Z. He, L. Wu, D. A. Stahl, **T. C. Hazen**, and J. Zhou. Contributed. Controlling Factors of Sediment Microbial Communities at the Metal Contaminated Freshwater Lake (Lake DePue). May 2009, Philadelphia, PA. Annual meeting of the American Society for Microbiology Meeting.
872. Wu*, L. Y., J. P. Xie, Y. Q. Luo, J. D. Van Nostrand, R. A. Sherry, Z. L. He, **T. C. Hazen**, and J. Z. Zhou. Contributed. The Responses of the Underground Microbial Communities of Grassland to the Global Warming and Different Land-use Practices Revealed by GeoChip and Pyrosequencing Analyses. May 2009, Philadelphia, PA. Annual meeting of the American Society for Microbiology Meeting.
873. Brileya*, K. A., C. B. Walker, S. Stolyar, D. A. Stahl, A. P. Arkin, **T. C. Hazen**, and M. W. Fields. Contributed. Temporal and Spatial Organization within a Syntrophic Bacterial-Archaeal Biofilm. May 2009, Philadelphia, PA. Annual meeting of the American Society for Microbiology Meeting.
874. Chhabra*, S. R., G. Butland, D. Elias, V. Fok, R. Prathapam, T. Juba, J-M. Chandonia, E. Witkowska, **T. C. Hazen**, J. Wall, and J. Keasling. Contributed. A High Throughput Genetics Pipeline for Identifying Protein-Protein Interactions in *Desulfovibrio vulgaris* Using Tandem-affinity Purification. May 2009, Philadelphia, PA. Annual meeting of the American Society for Microbiology Meeting.
875. Van Nostrand, J. D., P. Waldron, D. B. Watson, Z. He, L. Wu, P. Jardine*, **T. C. Hazen**, and J. Zhou. Contributed. GeoChip Analysis of Groundwater Microbial Communities across a Gradient of pH, Heavy Metal, and Nitrate Contamination. May 2009, Philadelphia, PA. Annual meeting of the American Society for Microbiology Meeting.
876. Van Nostrand, J. D., P. J. Waldron*, W. Wu, L. Wu, Y. Deng, J. Carley, Z. He, C. S. Criddle, P. Jardine, **T. C. Hazen**, and J. Zhou. Contributed. GeoChip-based Analysis of Functional Microbial Communities in a Bioreduced

Uranium-contaminated Aquifer during Nitrate Exposure. May 2009, Philadelphia, PA. Annual meeting of the American Society for Microbiology Meeting.

877. Ray*, J., E. Luning, A. Deutschbauer, K. Keller, J. Robertson, G. Zane, M. Price, S. Chhabra, J. Wall, A. Arkin, **T. C. Hazen**, J. Keasling, and A. Mukhopadhyay. Contributed. Study of Two-component Signal Transduction Systems in *Desulfovibrio vulgaris* Hildenborough. May 2009, Philadelphia, PA. Annual meeting of the American Society for Microbiology Meeting.
878. DeAngelis*, K. M, W. L. Silver, and **T. C. Hazen**. Contributed. Identification and Characterization of Lignocellulolytic Microbial Communities in Puerto Rican Wet Tropical Forest Soils. May 2009, Philadelphia, PA. Annual meeting of the American Society for Microbiology Meeting.
879. Hemme*, C. L., Y. Deng, T. J. Gentry, M. W. Fields, L. Wu, K. Barry, S. Green-Tringe, D. B. Watson, Z. He, **T. C. Hazen,** J. M. Tiedje, E. M. Rubin, and J. Zhou. Contributed. Analysis of a Microbial Metagenome from a Pristine Groundwater Ecosystem. May 2009, Philadelphia, PA. Annual meeting of the American Society for Microbiology Meeting.
880. Wu*, L. Y., J. D. Van Nostrand, T. J. Gentry, Z. J. Huang, C. W. Schadt, W. M. Wu, D. Watson, M. W. Fields, C. S. Criddle, J. Tiedje, **T. C. Hazen**, and J. J. Zhou. Contributed. Microbial Community Dynamics and the Effect of Geochemistry in Uranium Bioremediation Revealed by Functional Gene Array Analysis. May 2009, Philadelphia, PA. Annual meeting of the American Society for Microbiology Meeting.
881. Zhou*, A., Z. He, M. J. Joachimiak, P. S. Dehal, A. Pl Arkin, K. Hillesland, D. Stahl, J. Wall, **T. C. Hazen**, and J. Zhou. Contributed. Genetic Adaptation to Salt Stress during the Long-Term Evolution of *Desulfovibrio vulgaris* Hildenborough. May 2009, Philadelphia, PA. Annual meeting of the American Society for Microbiology Meeting.
882. Wu*, C. H., B. Sercu, L. C. Van De Werfhorst, T. Z. DeSantis, E. L. Brodie, **T. C. Hazen**, G. L. Andersen, and P. A. Holden. Contributed. Bacterial Biogeography of an Urban Creek Impacted with Fecal Pollution. May 2009, Philadelphia, PA. Annual meeting of the American Society for Microbiology Meeting.
883. Martinez*, R. J., M. J. Beazley, C. H. Wu, G. L. Andersen, **T. C. Hazen**, M. Taillefert, and P. A. Sobecky. Contributed. Microbial Phosphatase Activity Involved in Subsurface Uranium Sequestration. May 2009, Philadelphia, PA. Annual meeting of the American Society for Microbiology.
884. Chakraborty*, R., J. Fortney, A. Zhou, M. Joachimiak, S. Borglin, A. Mukhopadhyay, Z. He, A. P Arkin, J. Zhou, **T. C Hazen**. Contributed. Investigation of salt stress responses in the metal reducing organism *Geobacter metallireducens*. May 2009, Philadelphia, PA. Annual meeting of the American Society for Microbiology.
885. Kozina*, C. L., A. S. Pawate, D. Joyner, K. L. Sale, D. S. Reichmuth, **T. C. Hazen**, and R. Sapra. Contributed. Metabolic engineering of a novel thermophilic ethanologen *Geobacillus thermoglucosidasius* M10EXG for enhanced ethanol production. May 2009, San Francisco, CA. 31st Symposium on Biotechnology for Fuels and Chemicals, Society for Industrial Microbiology.
886. Knierim*, B., L. Prak, S. Singh, D. Jorgens, M. Zemla, K. DeAngelis, A. P. Reddy, J. VanderGheynst, **T. C. Hazen**, B. M. Holmes, R. Sapra, B. A. Simmons, P. D. Adams, and M. Auer. Contributed. Electron Microscopic Imaging at JBEI. May 2009, San Francisco, CA. 31st Symposium on Biotechnology for Fuels and Chemicals, Society for Industrial Microbiology.
887. Reddy*, A. P., M. Allgaier, P. Hugenholtz, B. A. Simmons, **T. C. Hazen**, and J. VanderGheynst. Contributed. Tracking Microbial Community Changes during Decomposition of Switchgrass. 31st Symposium on Biotechnology for Fuels and Chemicals, Society for Industrial Microbiology.
888. **Hazen*, T. C.** and B. Faybishenko. Invited. Update on Groundwater Issues across the DOE Complex. April 2009, Lansdowne, VA. 4th Annual DOE-ERSP PI Meeting.
889. Sobecky*, P. A., R. J. Martinez, M. J. Beazley, K. Salome, C. Wu, **T. C. Hazen**, G. L. Andersen, S. M. Webb, and M. Taillefert. Invited. Uranium Immobilization by the Activities of Microbial Phosphatases. April 2009, Lansdowne, VA. 4th Annual DOE-ERSP PI Meeting.
890. Van Nostrand*, J. D., P. J. Waldron, M. Xu, W. Wu, L. Wu. Z. He, Y. Deng, C. Hemme, D. Watson, C. Criddle, P. Jardine, **T. C. Hazen**, and J. Zhou. Invited. Improvements to GeoChip 3.0 and Application for Microbial Community Analysis. April 2009, Lansdowne, VA. 4th Annual DOE-ERSP PI Meeting.
891. Hubbard*, S. S., J. Aho-Franklin, H. Beller, E. Brodie, J. Chen, J. Christensen, M. Conrad, M. Denham, D. DePaolo, B. Faybishenko, S. Finsterle, Y. Fujita, **T. C. Hazen**, M. Kowalsky, L. Li, P. Long, P. Nico, E. Sonnethal, N. Spycher, C. Steefel, T. Tokunaga, J. Wan, K. H. Williams, and Y. Wu. Invited. LBNL Sustainable Systems SFA. April 2009, Lansdowne, VA. 4th Annual DOE-ERSP PI Meeting.
892. Conrad*, M. E., Y. Fujita, C. H. Wu, M. Bill, K. E. Wright, S. D. Chamberlain, B. R. Lam, E. L. Brodie, P. S. Nico, N. Spycher, and **T. C. Hazen**. Invited. Enhanced Immobilization of Metals and Radionuclides in the Vadose Zone. April 2009, Lansdowne, VA. 4th Annual DOE-ERSP PI Meeting.
893. **Hazen*, T. C.**, B. Faybishenko, H. Beller, E. Brodie, S. S. Hubbard, J. Peterson, E. Sonnenthal, C. Steefel, L. Yang, J. Larsen, M. Conrad, J. Christensen, S. Brown, D. Joyner, S. Borglin, J. Geller, R. Chakraborty, P. Nico, T. Tokunaga, J. Wan, M. Firestone, P. Long, D. Newcomer, and L. N'Guessan. Invited. Field-Scale Investigations of

Cryptic Growth and Memory Response Hypotheses at the Chromium Contaminated Hanford 100-H Site. April 2009, Lansdowne, VA. 4th Annual DOE-ERSP PI Meeting.

894. **Hazen, T. C.** Newsletter. Lab Scientists to Speak on Biofuels in San Francisco. 30 April 2009, Berkeley, CA. Today at Berkeley Lab (http://www.lbl.gov/publicinfo/newscenter/tabl/2009/april/04-30-09/)
895. DeAngelis, K., and **T. C. Hazen**. Newsletter. Rainforests Hold Clues to More Efficient Biofuel Production. 28 April 2009, Berkeley, CA. Today at Berkeley Lab (http://www.lbl.gov/publicinfo/newscenter/tabl/2009/april/04-28-09/)
896. Hazen, T. C. Newsletter. Microbial Hydrocarbon Recovery is EBI's 51st Project. 2 April 2009, Berkeley, CA. Today at Berkeley Lab (http://www.lbl.gov/publicinfo/newscenter/tabl/2009/april/04-02-09/)
897. **Hazen, T. C.** Invited. Systems Biology: The New Frontier for Bioenergy. April 2009, Norman, OK. Department of Microbiology, University of Oklahoma.
898. **Hazen, T. C.** Invited. Systems Biology: The New Frontier for Bioenergy. March 2009, Oklahoma City, OK. NanoFocus and Bioenergy Oklahoma EPSCoR Annual State Conference 2009.
899. **Hazen, T. C.** Newsletter. Bioremediation: the good, the bad, and the ugly. 16 March 2009, Berkeley, CA. Today at Berkeley Lab (http://www.lbl.gov/publicinfo/newscenter/tabl/2009/march/03-16-09/) (28,023 views YouTube)
900. **Hazen, T. C.** Invited. Environmental Biotechnology – a Tour through the 'Omics'. March 2009, San Diego, CA. AEHS annual west coast meeting.
901. **Hazen, T. C.** Invited. Systems Biology for Bioenergy. March 2009, Emeryville, CA. DOE Bioenergy Research Centers Biweekly Conference Call.
902. **Hazen, T. C.** Invited. Hanford 100H Cr Bioremediation. February 2009, Richland, WA. DOE EM RO conference on 100 area Cr.
903. **Hazen, T. C.** Invited Keynote. A Systems Biology Approach to Bioremediation. February 2009, Winnipeg, CA. Manitoba Environmental Industry Association Meeting.
904. **Hazen, T. C.** Invited Keynote. Bioremediation: the Hope and the Hype. February 2009, Winnipeg, CA. Manitoba Environmental Industry Association Meeting. http://www.learningagents.ca/MEIA/
905. Knierim*, B., L. Prak, S. Singh, D. Jorgens, M. Zemla, K. DeAngelis, A. Reddy, J. VanderGheynst, **T. C. Hazen**, B. Holmes, R. Sapra, B. Simmons, P. Adams, and M. Auer. Invited. Electron Microscopic Imaging a JBEI. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
906. Chivian*, D., E. J. Alm, E. L. Brodie, D. E. Culley, P. S. Dehal, T. Z. DeSantis, T. M. Gihring, A. Lapidus, L.-H. Lin, S. R. Lowry, D. P. Moser, P. Richardson, G. Southam, G. Wanger, L. M. Pratt, G. L. Andersen, **T. C. Hazen**, F. J. Brockman, A. P. Arkin, and T. C. Onstott. Invited. Environmental Genomics Reveals a Single-Species Ecosystem Deep Earth. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
907. Ramsay*, B., C. Hwang, S. Carroll, A. Lapidus, J. C. Detter, C. Han, M. Land, L. Hauser, **T. C. Hazen**, A. Arkin, A. Beliaev, R. Sanford, F. Löeffler, and M. W. Fields. Invited. Characterization of Metal-Reducing Communities and Isolates from Uranium-Contaminated Groundwater and Sediments. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
908. Brileya*, K., C. Walker, S. Stolyar, D. A. Stahl, A. P. Arkin, **T. C. Hazen**, and M. W. Fields. Invited. Temporal and Spatial Organization within a Syntrophic Bacterial-Archaeal Biofilm. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
909. Elias*, D. A., Elliott C. Drury, A. M. Redding, A. Mukhopadhyay, M. Joachimiak, H.-C. B. Yen, M. W. Fields, **T. C. Hazen**, A. P. Arkin, J. D. Keasling, and J. D. Wall. Invited. Expression profiling of hypothetical genes in Desulfovibrio vulgaris leads to improved functional annotation. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
910. Zhou*, A., Z. He, M. P. Joachimiak, P. S Dehal, A. P. Arkin, K. Hillesland, D. Stahl, J. Wall, **T. C. Hazen**, and J. Zhou. Invited. The molecular mechanism of adaptation to salt stress revealed by the long-term evolution of *Desulfovibrio vulgaris* Hildenborough. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
911. He*, Q., Z. He, D. C. Joyner, M. Joachimiak, M. N. Price, Z. K. Yang, H.-C. B. Yen, C. L. Hemme, R Chakraborty, W. Chen, M. M. Fields, D. A. Stahl, J. D. Keasling, M. Keller, A. P. Arkin, **T. C. Hazen**, J. D. Wall, and J. Zhou. Invited. Impact of Elevated Nitrate on Sulfate-Reducing Bacteria: Implications of inhibitory mechanisms in addition to osmotic stress. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
912. He, Z., A. Zhou*, Q. He, A. Mukhopadhyay, E. Baidoo, M. Joachimiak, C. L. Hemme, P. Benke, A. M. Redding, M. M. Fields, D. A. Stahl, J. D. Keasling, A. P. Arkin, **T. C. Hazen**, J. D. Wall, and J. Zhou. Invited. *Desulfovibrio*

vulgaris Hildenborough responses to salt and H_2O_2 stresses. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.

913. Van Nostrand*, J. D., L. Wu, P. Waldron, Ye Deng, Z. He, W. Wu, S. Carroll, C. Schadt, A. Palumbo, D. Watson, C. Criddle, P. Jardine, **T. C. Hazen**, and J. Zhou. Invited. Applications of GeoChip for analysis of different microbial communities. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
914. Deutschbauer, A., J. Kuehl*, M. Price, P. Dehal, **T. C. Hazen**, and A. P. Arkin. Invited. The development and application of an integrated functional genomics platform in *Desulfovibrio desulfuricans* G20. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
915. Dehal*, P. S., E. J. Alm, D. Chivian, K. H. Huang, M. P. Joachimiak, K. Keller, M. N. Price, R Chakraborty, M. W. Fields, J. Zhou, D. A. Stahl, J. D. Wall, A. P. Arkin, and **T. C. Hazen**. Invited. Comparative Sequencing and Analysis of Multiple *Desulfovibrio* and Other Sulfate Reducing Species. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
916. Auer, M., M. D. Biggin, G. Butland, S. Chhabra, D. A. Elias*, A. Fagorala, **T. C. Hazen**, D. Jorgens, D. C. Joyner, T. R. Juba, M. Perez, J. P. Remis, A. Tauscher, and J. D. Wall. Invited. Protein Complex Analysis Project (PCAP): Localization of Multi-Protein Complexes through SNAP-Tag Labeling. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
917. Chhabra, S., G. Butland*, D. Elias, V. Fok, R. Prathapam, T. Juba, J.-M. Chandonia, E. Witkowska, M. Biggin, **T. C. Hazen**, J. D. Wall, and J. D. Keasling. Invited. A high throughput pipeline for identifying protein-protein interactions in *Desulfovibrio vulgaris* using tandem-affinity purification. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
918. Walian*, P. J., S. Allen, L. Zeng, E. Szakal, E. Johansen, S. C. Hall, S. J. Fisher, M. E. Singer, C. Park, **T. C. Hazen**, H. E. Witkowska, M. D. Biggin, and B. K. Jap. Invited. Protein Complex Analysis Project (PCAP): Isolation and Identification of Membrane Protein Complexes from *D. vulgaris*. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
919. Dong, M., M. Daly, H. Liu, S. Allen, E. Szakal, S. C. Hall, S. J. Fisher, **T. C. Hazen**, J. T. Geller, M. E. Singer, L. L. Yang, J. Jin, H. E. Witkowska*, and M. D. Biggin. Invited. Analysis of an Intact Dissimilatory Sulfite Reductase Protein Complex from *Desulfovibrio vulgaris* using an Ion Mobility QTOF Analyzer. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
920. Liu*, H., L. Yang, N. Khainovski, M. Dong, E. D. Szakal, M. Choi, S. Allen, **T. C. Hazen**, J. T. Geller, M. E. Singer, P. Walian, B. Jap, S. C. Hall, S. J. Fisher, H. E. Witkowska, J. Jin, and M. D. Biggin. Invited. Protein Complex Analysis Project (PCAP): Introduction of Iterative MS/MS Acquisition (IMMA) to the MALDI LC MS/MS Workflow To Enable High Throughput Protein Complex Identification using Tagless Strategy. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
921. Dong*, M., H. Liu, L. Yang, M. Choi, E. D. Szakal, S. Allen, S. C. Hall, S. J. Fisher, G. Butland, **T. C. Hazen**, J. T. Geller, M. E. Singer, P. Walian, B. Jap, J. Jin, J.-M. Chandonia, H. E. Witkowska, and M. D. Biggin. Invited. Protein Complex Analysis Project (PCAP): Protein Complex Purification and Identification by "Tagless" Strategy. February 2009, Bethesda, MD. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
922. DeAngelis*, K. M., W. L. Silver, J. Fortney, and **T. C. Hazen**. Invited. Discovery and Optimization of Lignocellulolytic Bacteria from Puerto Rican Rainforest Soils. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
923. **Hazen*, T. C.,** G. Anderson, S. Borglin, E. Brodie, S. van Dien, M. Fields, J. Fortney, J. Geller, E. Hendrickson, K. L Hillesland, H.-Y. Holman, J. Leigh, T. Lie, J. Jacobsen, D. Joyner, R Chakraborty, M. Keller, A. Mukhopadhyay, C. Schadt, D. Stahl, S. Stolyar, C. Walker, J. Wall, Z. Yang, H.-C. B. Yen, G. Zane, and J. Zhou. Invited. Applied Environmental Microbiology Core Research on Stress Response Pathways in Metal-Reducers VIMSS:ESPP. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.

924. **Hazen*, T. C.**, P. Hugenholtz, S. Singer, J. VanderGheynst, P. M. D'haeseleer, M. P. Thelen, K. DeAngelis, A. Reddy, M. Allgaier, J. Fortney, G. Andersen, T. DeSantis, E. Brodie, C. Wu, D. Goodheart, M. Firestone, W. Silver, and B. Simmons. Invited. JBEI Microbial Communities Deconstruction Research Activities. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
925. **Hazen*, T. C.**, H.-Y. Holman, J. Keasling, A. Mukhopadhyay, S. Chhabra, J. T. Geller, M. Singer, D. Joyner, L. Camp, T. Torok, J. Wall, D. Elias, and M. D. Biggin. Invited. Protein Complex Analysis Project (PCAP): High Throughput Identification and Structural Characterization of Multi-Protein Complexes during Stress Response in *Desulfovibrio vulgaris*: Microbiology Subproject. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
926. Meagher*, R. J., M. Z. Hadi, Y. K. Light, P. Dehal, **T. C. Hazen**, A. P. Arkin, and A. K. Singh. Invited. Microfluidic tools for single-cell genomic analysis of environmental bacteria. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
927. Miller*, L. D., A. Venkateswaran, J. Mosher, M. Drake, Z.K. Yang, M. Rodriguez, S.D. Brown, T. J. Phelps, M. Podar, A. V. Palumbo, C. W. Schadt, M. Keller, D. C. Joyner, **T. C. Hazen**, S. Stolyar, K. Hillesland, and D.A. Stahl. Invited. Development and Analysis of Multispecies Consortia to Study Microbial Community Stress and Survival. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
928. Allgaier*, M., A. Reddy, J. VanderGheynst, A. Copeland, V. Kunin, P. D'haeseleer, K. DeAngelis, J. Fortney, D. Chivian, P. S. Dehal, B. Simmons, **T. C. Hazen**, and P. Hugenholtz. Invited. Metagenomic Characterization of Compost and Rain Forest Soil Microbial Communities. February 2009, Bethesda, MD. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
929. Mukhopadhyay*, A., E. Luning, J. Ray, A. Deutschbauer, K. Keller, J. Robertson, G. Zane, M. Price, S. Chhabra, J. Wall, A. P. Arkin, **T. C. Hazen**, and J. Keasling. Invited. ESPP2: Study of Two component signal transduction systems in *Desulfovibrio vulgaris* Hildenborough. February 2009, Washington, DC. Genomics:GTL Contractor-Grantee Workshop VII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2009.
930. **Hazen, T. C.** Invited. A Systems Biology Approach to Environmental Biotechnology using Ecogenomics. January 2009, Singapore. International Society for Microbial Ecology and International Water Association Special Colloquia.
931. **Hazen, T. C.** and G. L. Andersen. Invited. A Systems Biology Approach to Environmental Biotechnology using Ecogenomics. January 2009, Singapore. National University of Singapore.
932. **Hazen, T. C.** Invited. Systems Biology the New Frontier for Bioenergy. January 2009, Singapore. National University of Singapore.
933. **Hazen, T. C.** Invited. Field-Integrated Studies of Long-Term Sustainability of Chromium Bioreduction at Hanford 100H Site. December 2008, San Francisco, CA. Annual Meeting American Geophysical Union.
934. Hu, P., R. Chakraborty, E. L. Brodie, G. L. Andersen, **T. C. Hazen**. Contributed. Reduction of Cr(VI) and survival in Cr-contaminated sites by *Caulobacter crescentus*. December 2008, San Francisco, CA. Annual Meeting American Geophysical Union.
935. Zhou, A., A. Mukhopadhyay, Z. He, C. L. Hemme, J. D. Keasling, A. P. Arkin, **T. C. Hazen**, J. D. Wall, and J. Zhou. Diverse Oxidative Stress Resistance Mechanisms in Sulfate-reducing Bacteria as Revealed by Global Analysis of the Impact of H_2O_2 Exposure on *Desulfovibrio vulgaris* Hildenborough. December 2008, San Francisco, CA. Annual Meeting American Geophysical Union.
936. **Hazen, T. C.** Invited. Systems Biology the New Frontier for Bioenergy. November 2008, Guangzhou, China. Guangdong Institute of Microbiology, Chinese Academy of Sciences - Guangzhou.
937. **Hazen, T. C.** Invited. Life in the Slow Lane: Ecogenomics of an Extreme Environment. November 2008, Guangzhou, China. Guangdong Institute of Microbiology, Chinese Academy of Sciences - Guangzhou.
938. **Hazen, T. C.** Invited Seminar. Bioremediation: the Hope and the Hype of Environmental Cleanup. November 2008, Guangzhou, China. Guangdong Institute of Microbiology, Chinese Academy of Sciences - Guangzhou.
939. **Hazen, T. C.** Invited. Systems Biology (Integration of the Omics, Bioinformatics, and Biogeochemistry): The New Frontier for Environmental Biotechnology. November 2008, Guangzhou, China. Guangdong Institute of Microbiology, Chinese Academy of Sciences - Guangzhou.
940. **Hazen, T. C.** Invited. Life in the Slow Lane: Ecogenomics of an Extreme Environment. November 2008, Changsha, China. Annual Meeting of Ecological Society of China, Microbial Ecology Branch.
941. **Hazen, T. C.** Invited. Systems Biology the New Frontier for Bioenergy. November 2008, Haikou, China. Chinese Society for Microbiology and American Society for Microbiology Joint Seminar on Environmental Microbiology and Bioenergy.

942. **Hazen, T. C.** Newsletter. Discovering a Single-Species Ecosystem Deep in the Earth. 10 October 2008, Berkeley, CA. Today at Berkeley Lab (http://www.lbl.gov/publicinfo/newscenter/tabl/october/10-10-08/)
943. **Hazen, T. C.** Invited. Systems Biology the New Frontier for Bioenergy. October 2008, Santa Barbara, CA. University of California at Santa Barbara, Bren School of Engineering.
944. **Hazen*, T. C.**, J. F. Banfield, M. Bailey, P. Hugenholtz, G. L. Andersen, and J. Zhou. Invited. Roundtable: Ecogenomics, Which Methods are Best? August 2008, Cairns, Australia. International Symposium of Microbial Ecology (ISME XII).
945. Wu*, C. H., S. R. Oman, M. E. Singer, E. L. Brodie, **T. C. Hazen**, and G. L. Andersen. Contributed. Monitoring sewage microbial community changes in ocean water with the PhyloChip. August 2008, Cairns, Australia. International Symposium of Microbial Ecology (ISME XII).
946. He*, Z., Y. Deng, J. Van Nostrand, L. Wu, C. Hemme, T. Gentry, J. Liebich, A. Arkin, **T. C. Hazen**, and J. Zhou. Contributed. Development and Application of Geochip 3.0 for Microbial Community Analysis. August 2008, Cairns, Australia. International Symposium of Microbial Ecology (ISME XII).
947. Chivian*, D., E. Alm, E. Brodie, D. Culley, P. Dehal, T. DeSantis, T. Gihring, A. Lapidus, L.-H. Lin, S. Lowry, D. Moser, P. Richardson, G. Southam, G. Wanger, L. Pratt, G. Andersen, **T. C. Hazen**, F. Brockman, A. Arkin, and T. Onstott. Contributed. Environmental Genomics Reveals a Single Species Ecosystem Deep Within the Earth. August 2008, Cairns, Australia. International Symposium of Microbial Ecology (ISME XII).
948. Wells*, G., S. Kang, E. Pérez, H.-D. Park, L. Sepúlveda-Torres, B. Eggleston, E. Brodie, T. DeSantis, G. Andersen, **T. C. Hazen**, A. Massol-Deyá, J. Zhou, C. Francis, and C. Criddle. Contributed. Investigating the Core and Dispensable Microbiome in Activated Sludge with High-Density Oligonucleotide Phylogenetic and Functional Gene Microarrays. August 2008, Cairns, Australia. International Symposium of Microbial Ecology (ISME XII).
949. Zhou, A., Z. He, M. Joachimiak, P. Dehal, K. Hillesland, A. Arkin, D. Stahl, J. Wall, **T. C. Hazen**, and J. Zhou*. Contributed. The Dynamics and Genetic Adaptation to Salt Stress in Long-Term Laboratory Evolution of *Desulfovibrio vulgaris* Hildenborough. August 2008, Cairns, Australia. International Symposium of Microbial Ecology (ISME XII).
950. **Hazen, T. C.** Invited Convener. Symposium: Integrated Omics in Systems Biology: The New Frontier for Environmental Biotechnology. August 2008, San Diego, CA. Society for Industrial Microbiology Annual Meeting.
951. **Hazen, T. C.** Invited. The System Biology – Integrated Omics Approach. August 2008, San Diego, CA. Society for Industrial Microbiology Annual Meeting.
952. **Hazen, T. C.** Invited. A Systems Biology Approach to Environmental Biotechnology: Holes are greater then the parts that plug them! July 2008, Oak Ridge, TN. Oak Ridge National Laboratory.
953. **Hazen, T. C.** Invited. A Systems Biology Approach to Environmental Biotechnology: Holes are greater then the parts that plug them! July 2008, Knoxville, TN. University of Tennessee.
954. **Hazen, T. C.** Invited. Bioremediation: The Hope and the Hype for Environmental Cleanup. July 2008, Berkeley, CA. National Student Leadership Conference (Engineering).
955. **Hazen, T. C.** Invited. Bioremediation: The Hope and the Hype for Environmental Cleanup. June 2008, Berkeley, CA. National Student Leadership Conference (Engineering).
956. Dong*, M., M. Daly, H. Liu, S. Allen, E. Szakal, S. C. Hall, S. J. Fisher, L. L. Yang, J. Dearnley, **T. C. Hazen**, J. T. Geller, M. E. Singer, J. Jin, M. D. Biggin, B. Jap, H. E. Witkowska. Contributed. Analysis of an Intact Dissimilatory Sulfite Reductase Protein Complex from *Desulfovibrio vulgaris* using an Ion Mobility QTOF Analyzer. June 2008, Denver, CO. Annual Meeting ASMS Conference on Mass Spectrometry.
957. Allen*, S., P. J. Walian, E. Szakal, H. Liu, M. Dong, E. Johansen, L. L. Yang, S. C. Hall, S. J. Fisher, **T. C. Hazen**, J. T. Geller, M. E. Singer, J. Jin, M. D. Biggin, B. Jap, H. E. Witkowska. Contributed. Toward the Development of a "Tagless" Method for the Isolation and Identification of Membrane Complexes in *Desulfovibrio vulgaris* Hildenborough. June 2008, Denver, CO. Annual Meeting ASMS Conference on Mass Spectrometry.
958. Liu*, H., M. Dong, L. L. Yang, S. Allen, P. J. Walian, E. Johansen, S. C. Hall, S. J. Fisher, **T. C. Hazen**, J. T. Geller, M. E. Singer, J. Jin, M. D. Biggin, B. Jap, H. E. Witkowska. Contributed. iTRAQ™ Reagent-Based "Tagless" Strategy of Identification and Purification of Soluble Protein Complexes in Bacteria: Development of High-Throughput Protocols. June 2008, Denver, CO. Annual Meeting ASMS Conference on Mass Spectrometry.
959. **Hazen, T. C.** Invited Colloquium. Systems Biology Approaches to Metal/Radionuclide Contaminated Sites in Colloquium on Function and Activity in Microbial Consortia. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
960. He, Z. Y. Deng, J. D. Van Nostrand, L. Wu, C. L. Hemme, T. J. Gentry, J. Liebich*, A. P. Arkin, **T. C. Hazen**, and J. Zhou. Contributed. Development of GeoChip 3.0 for Microbial Community Analysis. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
961. He, Z., E. Baidoo*, A. Zhou, Q. He, P. Benke, R. Phan, M. Joachimiak, M. W. Fields, A. Mukhopadhyay, E. J. Alm, K. Huang, J. D. Wall, **T. C. Hazen**, J. D. Keasling, A. P. Arkin, and J. Zhou. Contributed. Global Transcriptional

and Metabolite Analysis of *Desulfovibrio vulgaris* Hildenborough Response to Long-Term Exposure to elevated NaCl. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.

962. Joyner*, D. C., C. B. Walker, R. Chakraborty, J. L. Fortney, J. T. Geller, L. E. Camp, A. Zhou, Z. He, M. P. Joachimiak, S. Stolyar, J. Zhou, D. A. Stahl, A. P. Arkin, and **T. C. Hazen**. Contributed. Characterization of Stress Response in a Sulfate Reducer/Methanogen Coculture. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
963. Dong*, M., H. Liu, **T. C. Hazen**, J. T. Geller, M. E. Singer, L. Camp, S. Allen, S. J. Fisher, S. C. Hall, E. D. Szakal, H. E. Witkowska, L. L. Yang, J. Jin, and M. D. Biggin. Contributed. Tagless Protein Complex Identification: A Novel High Throughput Strategy to Purify Protein Complexes and Identify them by Mass Spectrometry. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
964. Hemme, C., Y. Deng, T. J. Gentry*, L. Wu, M. W. Fields, S. Green-Tringe, J. C. Detter, K. Barry, N. Kyrpides, D. Watson, P. Richardson, **T. C. Hazen**, J. Tiedje, and J. Zhou. Contributed. Comparative Metagenomics of Microbial Communities from Pristine and Contaminated Groundwater. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
965. Wu*, L., Z. Huang, T. J. Gentry, W. Wu, Z. He, J. D. Van Nostrand, C. W. Schadt, D. Watson, P. Jardine, C. S. Criddle, J. Tiedje, **T. C. Hazen**, J. Zhou. Contributed. Microbial Community Dynamics and the Effect of Geochemistry in Uranium Bioremediation Revealed by Functional Gene Array Analysis. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
966. Schadt*, C. W., Z. Yang, A. Venkateswaran, M. Podar, S. Brown, A. Palumbo, **T. C. Hazen**, and M. Keller. Contributed. Developing Methods for Comprehensive Transcriptome Analysis of Environmental Communities. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
967. Zhou*, A., Z. He, A. Mukhopadhyay, C. Hemme, J. D. Keasling, A. P. Arkin, **T. C. Hazen**, J. D. Wall, and J. Zhou. Genome-Wide Transcriptomic and Proteomic Analyses of *Desulfovibrio vulgaris* Hildenborough Response to Hydrogen Peroxide. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
968. Wu, L. Y., X. Liu*, M. W. Fields, D. K. Thompson, C. E. Bagwell, J. M. Tiedje, **T. C. Hazen**, and J. Zhou. Contributed. Microarray-Based Whole-Genome Hybridization as a Tool for Determining Prokaryotic Species Relatedness. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
969. Chakraborty, R., M. Ramos-Hernandez, E. X. Perez, Y. Katsuura, A. Massol-Deya*, and **T. C. Hazen**. Contributed. Characterization of Novel Marine Sulfate-Reducing Bacteria Resistant to RDX and Other Explosives. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
970. Deutschbauer, A., J. Oh, M. Price, P. Dehal, D. Bruno, J. Kuehl, R. Chakraborty, **T. C. Hazen**, C. Nislow, G. Giaever, R. W. Davis, and A. P. Arkin. Contributed. Phenotypic Characterization of Microorganisms by Barcoded Transposon Mutagenesis. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
971. Waldron*, P. J., L. Wu, J. D. Van Nostrand, D. B. Watson, Z. He, L. Y. Wu, P. M. Jardine, **T. C. Hazen**, and J. Zhou. Contributed. GeoChip Analysis of Subsurface Microbial Communities Impacted by Heavy Metal and Nitrate Contamination. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
972. Chakraborty, R., E. L. Brodie, J. Van Nostrand, J. Zhou, and **T. C. Hazen***. Contributed. Investigation of Cr(VI) tolerant bacteria from Cr(VI)-contaminated 100H site at Hanford, WA. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
973. Martinez*, R. J., M. J. Beazley, C. H. Wu, G. L. Andersen, **T. C. Hazen**, M. Taillefert, and P. A. Sobecky. Contributed. Promoting Uranium Immobilization by the Activities of Microbial Phosphatases. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
974. Geller*, J., S. Borglin, L. Camp, R. Chakraborty, J. Fortney, M. Singer, M. Shelby, and **T. C. Hazen**. Contributed. Diverse Applications of Extremophile Fermenters and Observations. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
975. Van Nostrand*, J. D., W-M. Wu, L. Wu, Y. Deng, J. Carley, S. Carrol, Z. He, B. Gu, C. Criddle, P. Jardine, **T. C. Hazen**, and J. Zhou. Contributed. Microbial Functional Community Changes in a Groundwater Recirculation System during Periods of Resting, Reoxidation, and Recovery. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
976. Hadi*, M., R. Chakraborty, Y. Light, J. L. Fortney, R. Meagher, A. P. Arkin, **T. C. Hazen**, and A. Singh. Contributed. Multigene Analysis to Elucidate Organisms Involved in Cr Bioreduction. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
977. Chakraborty*, R., Y. J. Tang, F. Pingatore, J. D. Keasling, and **T. C. Hazen**. Contributed. Metabolic Pathways in the Pleomorphic Metal-Reducing organism *Desulfovibrio africanus* Strain PCS. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
978. Chakraborty, R., N. Ramos-Hernandez, D. C. Joyner, E. X. Perez, Y. Katsuura, A. Massol-Deya*, and **T. C. Hazen**. Contributed. Characterization of marine sulfate-reducing bacteria resistant to RDX and other explosives. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.

979. Han, B-G., D. Typke, M. Dong, **T. C. Hazen**, J. Geller, M. Singer, M. D. Biggin, and R. M. Glaeser*. Contributed. Initial Structural Survey of Multi-Protein Complexes of *Desulfovibrio vulgaris* by Electron Microscopy. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
980. Kang*, S., H. L. Gough, J. Van Nostrand, Z. He, L. Wu, D. A. Stahl, **T. C. Hazen**, and J. Zhou. Contributed. Microbial communities at the metal contaminated lake sediment. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
981. Wu*, C. H., J. Chou, Y. Fujita, M. Bill, E. L. Brodie, G.L. Andersen, **T. C. Hazen**, and M. S. Conrad. Contributed. Microbial Community Stimulated by Triethyl Phosphate for Vadose Zone Sequestration of Strontium-90 and Uranium. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
982. Sercu*, B., and C. H. Wu, L. Van De Werfhorst, E. L. Brodie, **T. C. Hazen**, G. L. Andersen, and P. A. Holden. Contributed. High Density Microarray Analysis of Water Quality in a California Coastal Creek. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
983. Elias*, D. A., A. M. Kucken, S. D. Brown, M. M. Drake, L. A. Fagan, R. Chakraborty, C. C. Brandt, M. Podar, **T. C. Hazen**, J. D. Wall, and A. V. Palumbo. Contributed. Environmental Parameters and the Genes Involved in Mercury Methylation in the Pleomorphic *Desulfovibrio africanus*. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
984. Fortney*, J., R. Chakraborty, M. Joachimiak, S. Borglin, A. P. Arkin, and **T. C. Hazen**. Contributed. Investigation of stress response in the metal reducing organism *Geobacter metallireducens*. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
985. Waldron, P. J., L. Wu, J. D. Van Nostrand, D. B. Watson, Z. He, C. W. Schadt, **T. C. Hazen**, P. M. Jardine*, and J. Zhou. Contributed. Functional gene array-based analysis of microbial community structure in a gradient of nitrate and heavy metal-contaminated groundwaters. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
986. Zhou*, A., Z. He, M. P. Joachimiak, P. S. Dehal, A. P. Arkin, K. Hillesland, D. A. Stahl, **T. C. Hazen**, and J. Zhou. Contributed. The dynamics and genetic adaptation to salt stress in experimental evolution of Desulfovibrio vulgaris Hildenborough. June 2008, Boston, MA. Annual Meeting American Society for Microbiology.
987. Hubbard*, S. S., K. Williams, M. Conrad, John E. Peterson, Boris Faybishenko, Jonathan Ajo-Franklin, Terry C. Hazen, and Phil Long. Contributed. Geophysical Monitoring of Hydrological and Biogeochemical Transformations associated with Bioremediation. June 2008, Monterey, CA. Battelle International Symposium on Recalcitrant Substances.
988. **Hazen, T. C.** Invited. Systems Biology (Integration of the Omics, Bioinformatics, and Biogeochemistry): The New Frontier for Environmental Biotechnology. May 2008, Cincinnati, OH. EPA Biotechnology Webnar.
989. **Hazen, T. C.** Invited. Systems Biology (Integration of the Omics, Bioinformatics, and Biogeochemistry): The New Frontier for Environmental Biotechnology. May 2008, Berkeley, CA. University of California Berkeley, College wide BioE* Seminar.
990. **Hazen, T. C.** Invited. Leveraged programs for site remediation. April 2008, Washington, DC. National Academy of Sciences Committee on Development and Implementation of a Cleanup Technology Roadmap for DOE's Office of Environmental Management.
991. **Hazen, T. C.** Invited Keynote. Biotechnology approaches to address issues about clean and sustainable energy production and management of waste. April 2008, Isla Verde, PR. 2nd Biotechnology Congress.
992. **Hazen, T. C.** Invited Keynote. Systems Biology (Integration of the Omics, Bioinformatics, and Biogeochemistry): The New Frontier for Environmental Biotechnology. April 2008, Niagara, NY. ECSC conference.
993. **Hazen, T. C.** Invited Seminar. Bioremediation: the Hope and the Hype of Environmental Cleanup. April 2008, Niagara, NY. Thomas Morton Lecture Series Niagara University.
994. Martinez*, R. J., M. J. Beazley, C. Wu, **T. C. Hazen**, G. L. Andersen, S. M. Webb, M. Taillefert, and P. A. Sobecky. Contributed. Promoting Uranium Immobilization by the Activities of Microbial Phosphates. April 2008, Lansdowne, VA. DOE Environmental Remediation Sciences Program Annual Review.
995. Hubbard*, S. S., J. Ajo-Franklin, H. Beller, E. Brodie, J. Chen, J. Christensen, M. Conrad, D. DePaolo, B. Faybishenko, S. Finsterle, M. Kowalsky, **T. C. Hazen**, P. Nico, S. Pride, E. Sonnenthal, N. Spycher, C. Steefel, T. Tokunaga, J. Wan, and K. Williams. Invited. Subsurface Science Scientific Focus Area at Lawrence Berkeley National Laboratory. April 2008, Lansdowne, VA. DOE Environmental Remediation Sciences Program Annual Review.
996. He*, Z., J. Van Nostrand, Y. Deng, Y. Liang, L. Wu, P. Waldron, C. Hemme, T. Gentry, W. Wu, D. Watson, **T. C. Hazen**, C. S. Criddle, and J. Zhou. Contributed. Further Development and Applications of GeoChip for Microbial Community Analysis. April 2008, Lansdowne, VA. DOE Environmental Remediation Sciences Program Annual Review.

997. **Hazen, T. C.** Invited Keynote. Systems Biology (Integration of the Omics, Bioinformatics, and Biogeochemistry): The New Frontier for Environmental Biotechnology. April 2008, Manchester, CT. Connecticut Valley Branch, American Society for Microbiology
998. **Hazen, T. C.** Invited. Life in the Slow Lane: Ecogenomics of an Extreme Environment. March 2008, Walnut Creek, CA. JGI Users Meeting.
999. **Hazen*, T. C.**, S. E. Borglin, D. C. Joyner, and J. Jacobsen. Invited. Anaerobic Phenotypic Microarray. March 2008, Florence, Italy. Phenotypic Microarray Conference.
1000. Joyner*, D., J. Jacobsen, A. Mukhopadhyay, and **T. C. Hazen**. Contributed. Assessment of Nitrogen utilization in *Desulfovibrio vulgaris* using phenotype microarray. March 2008, Florence, Italy. Phenotypic Microarray Conference.
1001. **Hazen, T. C.** Invited. Demonstration Workshop on PM visualization software and Microbesonline. March 2008, Florence, Italy. Phenotypic Microarray Conference.
1002. **Hazen, T. C.** Invited. The Frontiers of Environmental Biotechnology. March 2008, San Diego, CA. AICHE Soils Conference.
1003. Camp, L., S. Chhabra, D. Elias, J. T. Geller, H.-Y. Holman, D. C. Joyner, J. D. Keasling, A. Mukhopadhyay, M. Singer, T. Torok, J. D. Wall, **T. C. Hazen**, S. Allen, G. Butland, M. Choi, M. Dong, S. C. Hall, B. K. Jap, J. Jin, S. J. Fisher , H. Liu, E. Szakal, P. J. Walian, H. E. Witkowska, L. Yang, M. D. Biggin*, P. Arbelaez, M. Auer, D. Ball, F. Garczarek, R. M. Glaeser, D. Jorgens, J. Malik, E. Nogales , H. Palsdottir, J. P. Remis, D. Typke, K. H. Downing, S. S. Andrews, A. P. Arkin, S. E. Brenner, Y. W. Huang, K. Keller, R. Santos, M. Shatsky, and J.-M. Chandonia. Invited. Protein Complex Analysis Project (PCAP): Project overview. February 2008, North Bethesda, MD. Genomics: GTL Awardee Workshop VI.
1004. Hazen*, T. C., H.-Y. Holman, J. D. Keasling, A. Mukhopadhyay, S. Chhabra, J. T. Geller, M. Singer, D. C. Joyner, L. Camp, T. Torok, J. D. Wall, D. Elias, and M. D. Biggin. Invited. Protein Complex Analysis Project (PCAP): High Throughput Identification and Structural Characterization of Multi-Protein Complexes during Stress Response in *Desulfovibrio vulgaris*: Microbiology Subproject. February 2008, North Bethesda, MD. Genomics: GTL Awardee Workshop VI.
1005. Chhabra*, S., G. Butland, D. Elias, V. Fok, B. Gold, J. Jin, A. Mukhopadhyay, R. Prathapam, W. Yang, J.-M. Chandonia, J. D. Wall, **T. C. Hazen**, and J. D. Keasling. Invited. Protein Complex Analysis Project (PCAP): High throughput strategies for tagged-strain generation in *Desulfovibrio vulgaris*. February 2008, North Bethesda, MD. Genomics: GTL Awardee Workshop VI.
1006. Zhou, A., Z. He, M. P. Joachimiak, P. S. Dehal, A. P. Arkin, K. Hillesland, D. Stahl, J. Wall, **T. C. Hazen**, and J. Zhou. Invited. The dynamics and genetic adaptation to salt stress in experimental evolution of Desulfovibrio vulgaris Hildenborough. February 2008, North Bethesda, MD. Genomics: GTL Awardee Workshop VI.
1007. Walker, C. B., Z. He, Z. K. Yang, J. Jacobsen, J. Joseph A. Ringbauer, Q. He, J. Zhou, G. Voordouw, J. D. Wall, A. P. Arkin, **T. C. Hazen**, S. Stolyar, and D. A. Stahl. Invited. Energy Conservation in a Biogeochemically Significant Microbial Mutualism. February 2008, North Bethesda, MD. Genomics: GTL Awardee Workshop VI.
1008. Van Nostrand, J. D., L. Wu, S. Kang, P. Waldron, Y. Liang, Y. Deng, Z. He, W. Wu, H. Gough, S. Carroll, C. Schadt, A. Palumbo, D. Watson, C. Criddle, P. Jardine, B. Baldwin, A. Peacock, P. Long, D. Stahl, **T. C. Hazen**, and J. Z. Zhou. Invited. Applications of GeoChip to examine functional microbial communities in metal contaminated environments. February 2008, North Bethesda, MD. Genomics: GTL Awardee Workshop VI.
1009. Shutkin, A., A. P. Arkin, and **T. C. Hazen**. Invited. VIMSS:ESPP2 Scientific Research Project Management February 2008, North Bethesda, MD. Genomics: GTL Awardee Workshop VI.
1010. Schadt, C., Z. Yang, A. Venkateswaran, M. Drake, S. Carroll, D. Klingeman, M. Podar, T. Phelps, S. Brown, A. Palumbo, S. Stolyar, C. Walker, D. Stahl, **T. C. Hazen**, and M. Keller. Invited. Applications of Systems Biology Approaches to Understanding Artificial Microbial Consortia and Environmental Communities in the VIMSS Applied Environmental Microbiology Core. February 2008, North Bethesda, MD. Genomics: GTL Awardee Workshop VI.
1011. Mukhopadhyay, A., D. Joyner, E. Luning, K. Keller, J. Robertson, G. Zane, J. Jacobsen, M. Price, S. Chhabra, **T. C. Hazen**, A. P. Arkin, J. Wall, and J. Keasling. Invited. VIMSS ESPP: Deciphering the roles of two-component systems in Desulfovibrio vulgaris Hildenborough. February 2008, North Bethesda, MD. Genomics: GTL Awardee Workshop VI.
1012. Holman, H.-Y. N., E. Wozei, Z. Lin, L. Comolli, K. H. Downing, M. Fields, and **T. C. Hazen**. Observing Polyglucose Metabolism and Transient Oxygen Stress in Obligate Anaerobes in Vivo. February 2008, North Bethesda, MD. Genomics: GTL Awardee Workshop VI.
1013. Hemme, C. L., Y. Deng, T. J. Gentry, L. Wu, M. W. Fields, S. Green-Tringe, C. Detter, K. Barry, N. Kyrpides, D. Watson, P. Richardson, **T. C. Hazen**, J. Tiedje, E. Rubin, and J. Zhou. Comparative Metagenomics of Microbial Communities from Pristine and Contaminated Groundwater. February 2008, North Bethesda, MD. Genomics: GTL Awardee Workshop VI.

1014. He, Z., Y. Deng, J. D. V. Nostrand, L. Wu, C. Hemme, T. J. Gentry, A. P. Arkin, **T. C. Hazen**, and J. Zhou. Invited. Further development and applications of Geochip 3.0 for microbial community analysis. February 2008, North Bethesda, MD. Genomics: GTL Awardee Workshop VI.
1015. **Hazen, T. C.**, C. Abulencia, G. Anderson, S. Borglin, E. Brodie, S. v. Dien, M. Fields, J. Fortney, J. Geller, E. Hendrickson, H.-Y. Holman, J. Leigh, T. Lie, R. Phan, J. Jacobsen, D. Joyner, R. Chakraborty, M. Keller, A. Mukhopadhyay, C. Schadt, D. Stahl, S. Stolyar, C. Walker, J. D. Wall, E. Wozei, Z. Yang, H.-c. Yen, G. Zane, and J. Zhou. Invited. Applied Environmental Microbiology Core Research on Stress Response Pathways in Metal-Reducers VIMSS:ESPP. February 2008, North Bethesda, MD. Genomics: GTL Awardee Workshop VI.
1016. Elias, D. A., E. C. Drury, A. M. Redding, A. Mukhopadhyay, H.-C. B. Yen, K. H. Huang, **T. C. Hazen**, A. P. Arkin, and J. D. Wall. Invited. Expression profiling and gene association of hypothetical and conserved genes in *Desulfovibrio vulgaris* leads to functional annotation. February 2008, North Bethesda, MD. Genomics: GTL Awardee Workshop VI.
1017. Deutschbauer, A., J. Oh, M. Price, P. Dehal, D. Bruno, M. Henriquez, R. Chakraborty, **T. C. Hazen**, C. Nislow, G. Giaever, R. W. Davis, and A. P. Arkin. Invited. Phenotypic characterization of microorganisms by bar-coded transposon mutagenesis. February 2008, North Bethesda, MD. Genomics: GTL Awardee Workshop VI.
1018. Arkin, A. P., **T. C. Hazen**, C. Abulencia, E. J. Alm, G. Anderson, M. Auer, E. Baidoo, K. S. Bender, P. Benke, S. Borglin, E. Brodie, S. Brown, L. Camp, R. Chakraborty, S. Chhabra, G. Chirica, D. Chivian, M. Cipriano, P. S. Dehal, T. DeSantis, E. Drury, I. Dubchak, D. Elias, M. W. Fields, V. O. Y. Fok, J. Fortney, S. Gaucher, J. Geller, M. Hadi, Z. He, C. Hemme, K. Hillesland, H.-Y. Holman, K. H. Huang, Y. W. Huang, C. Hwang, J. Jacobsen, M. P. Joachimiak, D. Joyner, J. Keasling, K. Keller, M. Keller, Y. Light, E. Luning, R. Meagher, A. Mukhopadhyay, A. Palumbo, R. Phan, T. Phelps, F. Pingitore, M. Podar, M. N. Price, A. Redding, J. Robertson, R. Sapra, C. Schadt, M. Shirley, A. Shutkin, M. Singer, A. Singh, D. A. Stahl, S. Stolyar, A. Sundararajan, Y. Tang, J. V. Nostrand, S. Villa, C. Walker, J. D. Wall, Z. K. Yang, H.-c. Yen, G. Zane, A. Zhou, and J. Zhou. Invited. The Virtual Institute of Microbial Stress and Survival - VIMSS:ESPP Overview. February 2008, North Bethesda, MD. Genomics: GTL Awardee Workshop VI.
1019. **Hazen, T. C.** Invited. JBEI and the implications for Energy Science in the US. February 2008, Berkeley, CA. University of California Guest Lecture in The Science of Climate Change Mitigation.
1020. Deutschbauer, A., Y. W. Huang, K. H. Huang, E. J. Alm, D. Chivian, P. S. Dehal, M. P. Joachimiak, K. L. Keller, M. N. Price, I. Dubchak, **T. C. Hazen**, and A. P. Arkin. Invited. A systems Biological Framework for Microbial Pathway Characterization and Engineering. February 2008, Bodega Bay, CA. EBI 2008 Research Retreat.
1021. **Hazen, T. C.** Invited. State-of-the-science on microbial processes affecting subsurface contamination. January 2008, Oak Ridge, TN. Webnar: Developing a Roadmap to Accelerate Deployment of Field-Scale Models to Simulate Microbially-Mediated Remediation Performance of Contaminated Sites.
1022. Chakraborty*, R., R. Phan, Siu Pan Lam, Chin Man Leung, E. L. Brodie, and **T. C. Hazen**. Contributed. Diverse anaerobic Cr(VI) tolerant bacteria from Cr(VI)-contaminated 100H site at Hanford. December 2007, San Francisco, CA. Annual Meeting of the American Geophysical Union.
1023. Wu*, C. H., J. Chou, Y. Fujita, M. Bill, E. L. Brodie, G. L. Andersen, **T. C. Hazen**, and M. S. Conrad. Contributed. Microbial Populations Associated with Phosphate-Mediated Vadose Zone Sequestration of Strontium and Uranium. December 2007, San Francisco, CA. Annual Meeting of the American Geophysical Union.
1024. **Hazen, T. C.** Invited Keynote. Bioremediation: The Hope and the Hype for Environmental Cleanup. November 2007, Pittsburg, PA. Allegheny Branch American Society for Microbiology.
1025. **Hazen, T. C.** Invited Keynote. Systems Biology (Integration of the Omics, Bioinformatics, and Biogeochemistry): The New Frontier for Environmental Biotechnology. November 2007, Somerset, NJ. Theobald Smith Society, NJ Branch American Society for Microbiology.
1026. **Hazen, T. C.** Invited Keynote. Bioremediation: The Hope and the Hype for Environmental Cleanup. November 2007, Auburn, AL. SE Branch American Society for Microbiology.
1027. **Hazen, T. C.** Invited. Bioremediation: The Hope and the Hype for Environmental Cleanup. October 2007, Mayaguez, PR. Videoconference Seminar for Department of Biology, University of Puerto Rico.
1028. **Hazen, T. C.** Invited Keynote. Systems Biology (Integration of the Omics, Bioinformatics, and Biogeochemistry): The New Frontier for Environmental Biotechnology. October 2007, Lexington, KY. Kentucky/Tennessee Branch of the American Society for Microbiology.
1029. Van Nostrand*, J. D., Y. Deng, L. Wu, W. Wu, S. Carroll, Z. He, C. Criddle, P. Jardine, **T. C. Hazen**, and J. Z. Zhou. Contributed. Changes in Microbial Community Function during a Period of Reoxidation in a Groundwater Recirculation System. September 2007, College Park, MD. 15th Annual International Conference on Microbial Genomics.
1030. **Hazen, T. C.** Invited. Integrated Omics in Systems Biology: The New Frontier for Environmental Biotechnology, Ecology and Evolution. September 2007, Niagara Falls, NY. The Second International Conference on Challenges in Site Remediation: Site Characterization & Performance Monitoring.

1031. **Hazen, T. C.** Invited. Long-Term Chromium Bio-Immobilization at the Hanford 100H Site: Geochemical and Microbiological Response to Slow Release Electron Donor. September 2007, Niagara Falls, NY. The Second International Conference on Challenges in Site Remediation: Site Characterization & Performance Monitoring.
1032. Dong, M., H/ Liu, S. Allen, S. C. Hall, S. J. Fisher, **T. C. Hazen**, J. T. Geller, M. E. Singer, L. Yang, J. Jin, M. D. Biggin, H. E. Witkowska*. Contributed. Methodological Refinements in iTRAQTM Reagent-Based "Tagless" Strategy of Identification and Purification of Soluble Protein Complexes in Bacteria. August 2007, San Francisco, CA. 8th International Symposium on Mass spectrometry in the Health & Life Sciences: Molecular & Cellular Proteomics
1033. **Hazen, T. C.** Invited. Bioremediation: The Hope and the Hype for Environmental Cleanup. August 2007, Berkeley, CA. National Student Leadership Conference (Engineering).
1034. **Hazen, T. C.** Invited. Systems Microbiology and Exploring Microbial Community Diversity. August 2007, Berkeley, CA. LBNL Homeland Security S&T Director Walker.
1035. **Hazen, T. C.** Invited. Bioremediation: The Hope and the Hype for Environmental Cleanup. July 2007, Berkeley, CA. LBNL Summer Lecture Series.
1036. **Hazen, T. C.** Invited. Systems Biology in Environmental Biotechnology. June 2007, San Juan, PR. 50th Anniversary of the Puerto Rican Society of Microbiology.
1037. Zhou, A., Z. He, C. Hemme, A. Mukhopadhyay, J. Keasling, A. P. Arkin, **T. C. Hazen**, J. D. Wall, and J. Zhou. Contributed. Genome-Wide Transcriptomic Analysis of *Desulfovibrio vulgaris* Hildenborough Response to Hydrogen Peroxide. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology.
1038. Chhabra, S. R., A. Mukhopadhyay, G. Zane, C. Hemme, J. Zhou, J. Wall, **T. C. Hazen**, and J. Keasling. Contributed. Functional Characterization of the *Desulfovibrio vulgaris* Hildenborough Megaplasmid. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology.
1039. He, Z., Y. Deng, J. D. Van Nostrand, L. Wu, C. L. Hemme, J. Liebich, T. J. Gentry, **T. C. Hazen**, A. P. Arkin, and J. Zhou. Contributed. GeoChip 3.0: Further Development and Applications of Functional Gene Arrays (FGAs) for Analysis of Microbial Communities. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology.
1040. Hemme, C. L., Y. Deng, T. J. Gentry, L. Wu, M. W. Fields, K. Barry, D. B. Watson, N. Krypides, C. Detter, D. C. Bruce, C. W. Schadt, P. Richardson, **T. C. Hazen**, J. M. Tiedje, E. Rubin, and J. Zhou. Contributed. Comparative Metagenomics of Microbial Communities from Pristine and Contaminated Groundwater. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology.
1041. Mohanty, S. R., E. L. Brodie, B. Kollah, **T. C. Hazen**, and E. Roden. Contributed. Comparative Analysis of Microbial Communities Associated with U(VI) Bioreduction in Ethanol-Amended Subsurface Sediment by 16S rRNA Clone Libraries and a High Density Phylogenetic DNA Microarray. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology.
1042. Wu, L. Y., T. J. Gentry, Z. J. Huang, C. W. Schadt, W. M. Wu, D. Watson, Z. L. He, C. S. Criddle, J. M. Tiedje, **T. C. Hazen**, and J. Zhou. Contributed. Microarray-Based Analysis of Microbial Community Composition and Dynamics in Uranium Bioremediation. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology.
1043. Drury. E. C., A. M. Redding, A. Mukhopadhyay, K. H. Huang, **T. C. Hazen**, A. P. Arkin, J. D. Wall, D. A. Elias. Contributed. A Large Number of Hypothetical Proteins Are Differentially Expressed during Stress in *Desulfovibrio vulgaris*. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology.
1044. He, Q., Z. He, W. Chen, Z. Yang, E. J. Alm, K. H. Huang, H-C. Yen, D. C. Joyner, M. Keller, A. P. Arkin, **T. C. Hazen**, J. D. Wall, and J. Zhou. Contributed. Understanding the Suppression of Sulfate Reducing Bacteria by Nitrate: A Functional Genomics Approach. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology.
1045. Hadi, M., Y. Light-Kim, J. Kaiser, P. Lane, S. P. Gaucher, G. Chirica, A. P. Arkin, **T. C. Hazen**, and A. Singh. Contributed. High-Throughput Identification of Protein Interactions in Electron-Transfer and Stress-Response Pathways in Sulfate-Reducing Bacteria *Desulfovibrio vulgaris*. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology.
1046. Gaucher*, S. P., G. S. Chirica, R. Sapra, A. M. Redding, A. Mukhopadhyay, G. M. Buffleben, C. Kozina, R. Phan, D. C. Joyner, J. D. Keasling, **T. C. Hazen**, A. P. Arkin, and A. K. Singh. Contributed. A Survey of Protein Post-Translational Modifications Found in the Sulfate-Reducing Bacterium *Desulfovibrio vulgaris* Hildenborough: Search for Stress Response Mediators. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 62234.
1047. Joyner*, D., J. Jacobsen, A. Mukhopadhyay, and **T. C. Hazen**. Contributed. Assessment of Nitrogen utilization in *Desulfovibrio vulgaris* using phenotype microarray. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 62409.

1048. Daly*, R. A., E. L. Brodie, Y. Kim, J. M. Wan, T. K. Tokunaga, G. L. Andersen, **T. C. Hazen**, and M. K. Firestone. Contributed. Influence of Electron Donor Type and Concentration on Dynamics of Bacterial Populations Associated with Uranium Reduction and Remobilization. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 62410.
1049. Elias*, D. A., G. D. Butland, G. M. Zane, I. B. Hilton, **T. C. Hazen**, M. D. Biggin, and J. D. Wall. Contributed. High-throughput Identification of Multi-protein Complexes via TAP tagging in Desulfovibrio vulgaris. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 62411.
1050. Biggin*, M. D., M. Dong, G. Butland, S. C. Hall, **T. C. Hazen**, B. K. Jap, J. Jin, S. J. Fisher, P. J. Walian, H. E. Witkowska, L. Yang, and . Contributed. High Throughput Purification and Identification of Water Soluble Multi-Protein Complex in *Desulfovibrio vulgaris*. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 62421.
1051. Holman*, H.-Y. N., E. Wozei, Z. Lin, and T.C. Hazen. Contributed. Observing Molecular-Level Transient Oxygen Stress in Obligate Anaerobes In Vivo. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 2426.
1052. Van Nostrand*, J. D., Y. Liang, L. Wu, S. Carroll, Z. He, C. Criddle, **T. C. Hazen**, and J. Z. Zhou. Contributed. Changes in Microbial Community Function during a Period of Reoxidation in a Groundwater Recirculation System. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 62427.
1053. Brodie*, E. L., **T. C. Hazen**, B. Faybishenko, D. Joyner, S. E. Borglin, R. Chakraborty, M. Conrad, J. Zhou, J. Van Nostrand, P. E. Long, D. R. Newcomer, and G. L. Andersen. Contributed. Phylogenetic and Functional Gene Microarray Analysis Demonstrates Direct and Indirect Mechanisms for Sustained Chromium Bioimmobilization. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 62428.
1054. Phan, R., R. Chakraborty, S. P. Lam, E. L. Brodie, and **T. C. Hazen**. Contributed. Isolation and Characterization of diverse anaerobic Cr(VI) tolerant bacteria from Cr(VI)-contaminated 100H site at Hanford. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 62429.
1055. Hazen*, T. C., P. Dehal, A. P. Arkin, M. W. Fields, M. Keller, J. Zhou, G. L. Andersen, E. L. Brodie, D. L. Wyborski, C. B. Abulencia, C. L. Hemme, T. Gentry, D. B. Watson, and P. Richardson. Contributed. Comparison of Multiple Ecogenomics Methods for Determining Ecosystem Function in Uranium-Contaminated Environments. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 62430.
1056. Yang*, Z., C. W. Schadt, **T. C. Hazen**, and M. Keller. Contributed. Towards High-Throughput and High Sensitivity Approaches for Uncovering Total Environmental Gene Expression Patterns. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 62230.
1057. Mukhopadhyay*, A., A. M. Redding, A. P. Arkin, S. Borglin, P. Dehal, R. Chakraborty, J. T. Geller, B. Giles, **T. C. Hazen**, Q. He, M. Joachimiak, D. C. Joyner, J. D. Wall, Z. Yang, J. Zhou, and J. D. Keasling. Contributed. Comparison of *Desulfovibrio vulgaris* Hildenborough response to microaerobic and aerobic exposure. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 62423.
1058. Ramos-Hernandez*, N., R. Chakraborty, D. C. Joyner, E. X. Perez, A. Massol-Dêya, and **T. C. Hazen**. Contributed. Chemotactic and Growth Responses to Explosives of *Desulfovibrio vulgaris* H. and Sulfate-Reducing Bacteria Isolated from Tropical Marine Sediments. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 62424.
1059. Perez*, E. X., N. M. Ramos, A. A. Massol-Deyá, G. L. Andersen, Y. Piceno, E. L. Brodie, and **T. C. Hazen**. Contributed. Bacterial Diversity in Soil and Sediments from a Former Bombing Range (Vieques, PR). May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 62431.
1060. Wells*, G. F., E. X. Pérez, H.-D. Park, L. C. Sepúlveda-Torres, G. L. Andersen, **T. C. Hazen**, C. A. Francis, C. S. Criddle, and A. A. Massol-Deyá. Contributed. Application of High-Density Oligonucleotide Microarrays to the Study of Crenarchaeota Community Structure and Dynamics in an Aerated Activated Sludge Wastewater Treatment Plant. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 62432.
1061. Waldron*, P. J., J. D. Van Nostrand, D. B. Watson, L. Wu, Z. He, **T. C. Hazen**, and J. Zhou. Contributed. Effects of Nitrate, pH and Uranium on the Subsurface Microbial Communities Revealed by Functional Gene Arrays. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 62434.
1062. Chakraborty, R., Y. J. Tang, H. García-Martín, J. Chu, **T. C. Hazen**, and J. D. Keasling. Contributed. Flux analysis of central metabolic pathways in the Fe (III)-reducing organism *Geobacter metallireducens* via ^{13}C isotopic labeling. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 62247.
1063. Walian*, P. J., M. Dong, S. Fisher, J. T. Geller, S. Hall, **T. C. Hazen**, D. C. Joyner, M. E. Singer, H. E. Witkowska, M. D. Biggin, B. K. Jap. Contributed. Isolation and Identification of Membrane Protein Complexes in *Desulfovibrio vulgaris* Hildenborough. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 62452.

1064. Chivian*, D., E. J. Alm, E. L. Brodie, D. E. Culley, T. Gihring, A. Lapidus, L.-H. Lin, S. Lowry, D. P. Moser, P. Richardson, G. Southam, G. Wanger, L. M. Pratt, A. P. Arkin, **T. C. Hazen**, F. J. Brockman, and T. C. Onstott. Contributed. The Complete Genome of the Uncultivated Bacterium *Desulforudis audaxviator* from 2.8 km Beneath Earth's Surface. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology. LBNL 62467.
1065. Singer*, M. E., J. T. Geller, R. Chakraborty, Y. Katsuura, M. D. Biggin, and **T. C. Hazen**. Contributed. Reproducible, high quality *Desulfovibrio vulgaris* Hildenborough biomass production using anaerobic fermentors in batch and continuous flow mode. May 2007, Toronto, Canada. Annual Meeting American Society for Microbiology.
1066. **Hazen, T. C.** Invited. Life in the slow lane: Deep subsurface extreme environments as analogs to Mars? May 2007, San Francisco. UCSF Annual Hamilton Symposium.
1067. **Hazen, T. C.** Invited. Systems Biology (Integration of the Omics, Bioinformatics, and Biogeochemistry): The New Frontier for Environmental Biotechnology. May 2007, Champagne, IL. Pioneers in Genomic Biology Lecture Series, University of Illinois.
1068. Conrad*, M., **T. C. Hazen**, N. Spycher, P. Nico, E. L. Brodie, Y. Fujita, and A. Ray. Invited. In Situ Sequestration of ^{90}Sr and Uranium in the Vadose Zone through Microbial Precipitation of Phosphate Minerals. April 2007, Lansdowne, VA. DOE Environmental Remediation Sciences Program Annual Review.
1069. Hazen*, T. C., B. Faybishenko, E. Brodie, D. Joyner, S. Borglin, J. Hanlon, M. Conrad, T. Tokunaga, J. Wan1, S. Hubbard, K. Williams, J. Peterson, M. Firestone, G. Andersen, T. DeSantis, R. Chakraborty, P. E. Long, D. R. Newcomer, C. T. Resch, K. Cantrell, A. Willett, and S. Koenigsberg. Invited. Field-Integrated Studies of Long-Term Sustainability of Chromium Bioreduction at Hanford 100H Site. April 2007, Lansdowne, VA. DOE Environmental Remediation Sciences Program Annual Review.
1070. Tokunaga*, T. K., Y. Kim, J. Wan, R. Daly, E. L. Brodie, M. K. Firestone, and **T. C. Hazen**. Invited. Mesoscale Biotransformation of Uranium. April 2007, Lansdowne, VA. DOE Environmental Remediation Sciences Program Annual Review.
1071. He*, Z., Y. Deng, J. Van Nostrand, C. Hemme, T. Gentry, W. Wu, C. Schadt, L. Wu, B. Gu, D. Watson, **T. C. Hazen**, P. Jardine, C. S. Criddle, and J. Zhou. Invited. GeoChip: Development and Applications for Microbial Community Analysis. April 2007, Lansdowne, VA. DOE Environmental Remediation Sciences Program Annual Review.
1072. Daly*, R. A., E. L. Brodie, T. K. Tokunaga, Y. Kim, J. Wan, **T. C. Hazen**, and M. K. Firestone. Invited. Influence of Electron-Donor Form and Supply Rate on Dynamics of Bacterial Populations Associated with Uranium Reduction and Remobilization. April 2007, Lansdowne, VA. DOE Environmental Remediation Sciences Program Annual Review.
1073. **Hazen, T. C.** Invited. Ecogenomics for Systems Biology Approaches to Extreme and Contaminated Environments. April 2007, Kent, OH. ASM Branch Foundation Lecture: Ohio ASM Branch.
1074. **Hazen, T. C.** Invited. Systems Biology (Integration of the Omics, Bioinformatics, and Biogeochemistry): The New Frontier for Environmental Biotechnology. April 2007, Norman, OK. University of Oklahoma.
1075. **Hazen, T. C.** Invited. Bioremediation of Organic Pollutants under Aerobic and Anaerobic Environmental Conditions. April 2007, Adjuntas, PR. Advances in Environmental Remediation, Instituto Comunitario de Biodiversidad y Cultura Casa Pueblo de Adjuntas, Programa de Biotecnología Industrial, Universidad de Puerto Rico – Mayaguez.
1076. **Hazen, T. C.** Invited. Bioremediation of Metal Contaminated Sites. April 2007, Adjuntas, PR. Advances in Environmental Remediation, Instituto Comunitario de Biodiversidad y Cultura Casa Pueblo de Adjuntas, Programa de Biotecnología Industrial, Universidad de Puerto Rico – Mayaguez.
1077. Brodie*, E. L., and **Hazen, T. C.** Invited. Molecular Tools in Environmental Microbiology. April 2007, Adjuntas, PR. Advances in Environmental Remediation, Instituto Comunitario de Biodiversidad y Cultura Casa Pueblo de Adjuntas, Programa de Biotecnología Industrial, Universidad de Puerto Rico – Mayaguez.
1078. **Hazen, T. C.** Organizer/Host. ASTAR Advanced Judicial Institute on Nanotechnology, Synthetic Biology and Environmental Biotechnology. March 2007, Berkeley, CA. ASTAR Platform B Workshop.
1079. **Hazen, T. C.** Invited. Bioremediation and Environmental Biotechnology. March 2007, Berkeley, CA. ASTAR Advanced Judicial Institute on Nanotechnology, Synthetic Biology and Environmental Biotechnology Platform B Workshop.
1080. **Hazen, T. C.** E. Brodie, and D. Favero. Invited. Case Study: Bioremediation (Radian Day). March 2007, Berkeley, CA. ASTAR Advanced Judicial Institute on Nanotechnology, Synthetic Biology and Environmental Biotechnology Platform B Workshop.
1081. **Hazen, T. C.** Invited. Application of Proteomics to Bioremediation. March 2007, Washington, DC. DOE Workshop Identifying the Future Proteomics Needs for Biological and Environmental Research.
1082. **Hazen, T. C.** Invited. Integrated Omics in Systems Biology: The New Frontier for Environmental Biotechnology, Ecology and Evolution. February 2007, Atlanta, GA. School of Biology, Georgia Institute of Technology.

1083. Elias, D., S. Chhabra1, J. T. Geller, H.-Y. N. Holman, D. Joyner, J. Keasling, A. Mukhopadhyay, M. Singer, T. Torok, J. Wall, **T. C. Hazen**, G. Butland, M. Dong, S. C. Hall, B. K. Jap, J. Jin, S. J. Fisher, P. J. Walian, H. E. Witkowska, L. Yang, M. D. Biggin*, M. Auer, A. Avila-Sakar, F. Garczarek, R. M. Glaeser, J. Malik, E. Nogales, H. Palsdottir, J. P. Remis, D. Typke, K. H. Downing, S. S. Andrews, A. P. Arkin, S. E. Brenner, Y. W. Huang, J. Jacobsen, K. Keller, R. Santos, M. Shatsky, and J.-M. Chandonia. Invited. Protein Complex Analysis Project (PCAP): Project Overview. February 2007, North Bethesda, MD. Joint Genomics: GTL Awardee Workshop V and Metabolic Engineering 2007 and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2007. LBNL 62471.

1084. **Hazen*, T. C**., H.-Y. N. Holman, J. Keasling, A. Mukhopadhyay, S. Chhabra, J. T. Geller, M. Singer, D. Joyner, T. Torok, J. Wall, D. Elias, and M. D. Biggin. Invited. Protein Complex Analysis Project (PCAP): High Throughput Identification and Structural Characterization of Multi-Protein Complexes during Stress Response in Desulfovibrio vulgaris: Microbiology Subproject. February 2007, North Bethesda, MD. Joint Genomics: GTL Awardee Workshop V and Metabolic Engineering 2007 and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2007. LBNL 62472.

1085. Abulencia, C., E. J. Alm, G. Anderson, E. Baidoo, P. Benke, S. Borglin, E. L. Brodie, R. Chakraborty, S. Chhabra, G. Chirica, D. Chivian, M. J. Cipriano, M. E. Clark, P. S. Dehal, E. C. Drury, I. Dubchak, D. A. Elias, M. W. Fields, J. Gabster, S. P. Gaucher, J. Geller, B. Giles, M. Hadi, **T. C. Hazen**, Q. He, Z. He, C. L. Hemme, E. Hendrickson, K. L. Hillesland, H.-Y. Holman, K. H. Huang, Y. W. Huang, C. Hwang, J. Jacobsen, M. P. Joachimiak, D. C. Joyner, J. D. Keasling, K. Keller, M. Keller, J. Leigh, T. Lie, A. Mukhopadhyay, R. Phan, F. Pingitore, M. Price, A. M. Redding, J. Joseph A. Ringbauer, R. Sapra, C. W. Schadt, A. Shutkin, A. K. Singh, D. A. Stahl, S. M. Stolyar, Y. Tang, J. D. Van Nostrand, C. B. Walker, J. D. Wall, E. Wozei, Z. K. Yang, H.-C. Yen, G. Zane, A. Zhou, J. Zhou, and A. P. Arkin. Invited. The Virtual Institute of Microbial Stress and Survival: An overview of the Environmental Stress Pathway Project. February 2007, North Bethesda, MD. Joint Genomics: GTL Awardee Workshop V and Metabolic Engineering 2007 and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2007. LBNL 62215.

1086. Chivian, D., E. J. Alm, E. L. Brodie, D. E. Culley, T. M. Gihring, A. Lapidus, L.-H. Lin, S. Lowry, D. P. Moser, P. Richardson, G. Southam, G. Wanger, L. M. Pratt, A. P. Arkin, **T. C. Hazen**, F. J. Brockman, and T. C. Onstott. Invited. The Complete Genome of the Uncultivated Ultra-Deep Subsurface Bacterium *Desulforudis audaxviator* Obtained by Environmental Genomics. February 2007, North Bethesda, MD. Joint Genomics: GTL Awardee Workshop V and Metabolic Engineering 2007 and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2007. LBNL 62208.

1087. Drury, E. C., A. M. Redding, A. Mukhopadhyay, K. H. Huang, **T. C. Hazen**, A. P. Arkin, J. D. Wall, and D. A. Elias. Invited. A Large Number of Hypothetical Proteins are Differentially Expressed during Stress in *Desulfovibrio vulgaris.* February 2007, North Bethesda, MD. Joint Genomics: GTL Awardee Workshop V and Metabolic Engineering 2007 and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2007. LBNL 62473.

1088. Gaucher, S. P., A. M. Redding, G. S. Chirica, R. S. G. M. Buffleben, C. Kozina, A. Mukhopadhyay, D. C. Joyner, J. D. Keasling, **T. C. Hazen**, A. P. Arkin, D. A. Stahl, J. D. Wall, and A. K. Singh. Invited. A Survey of Protein Post-Translational Modifications Found in the Sulfate-Reducing Bacterium *Desulfovibrio vulgaris* Hildenborough. February 2007, North Bethesda, MD. Joint Genomics: GTL Awardee Workshop V and Metabolic Engineering 2007 and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2007. LBNL 62475.

1089. **Hazen, T. C.**, C. Abulencia, G. Anderson, S. Borglin, E. Brodie, S. v. Dien, M. Fields, J. Geller, H.-Y. Holman, R. Phan, E. Wozei, J. Jacobsen, D. Joyner, R. Chakraborty, M. Keller, A. Mukhopadhyay, D. Stahl, S. Stolyar, J. Wall, H.-C. Yen, G. Zane, J. Zhou, E. Hendrickson, T. Lie, J. Leigh, and C. Walker. Invited. VIMSS Applied Environmental Microbiology Core Research on Stress Response Pathways in Metal-Reducers. February 2007, North Bethesda, MD. Joint Genomics: GTL Awardee Workshop V and Metabolic Engineering 2007 and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2007. LBNL 62232.

1090. He, Q., Z. He, W. Chen, Z. Yang, E. J. Alm, K. H. Huang, H.-C. Yen, D. C. Joyner, M. Keller, A. P. Arkin, **T. C. Hazen**, J. D. Wall, and J. Zhou. Invited. Nitrate stress response in *Desulfovibrio vulgaris* Hildenborough: Whole-Genome Transcriptomics and proteomics analyses. February 2007, North Bethesda, MD. Joint Genomics: GTL Awardee Workshop V and Metabolic Engineering 2007 and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2007. LBNL 62236.

1091. He, Z., J. D. Van Nostrand, L. Wu, T. J. Gentry, Y. Deng, C. W. Schadt, W. Wu, J. Liebich, S. C. Chong, B. Gu, P. Jardine, C. Criddle, D. Watson, **T. C. Hazen**, and J. Zhou. Invited. Monitoring of Microbial Reduction and Reoxidation Activities in the FRC Sites using a Comprehensive Functional Gene Array. February 2007, North Bethesda, MD. Joint Genomics: GTL Awardee Workshop V and Metabolic Engineering 2007 and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2007. LBNL 62231.

1092. Hemme, C. L., Y. Deng, T. Gentry, L. Wu, M. W. Fields, D. Bruce, C. Detter, K. Barry, D. Watson, P. Richardson, J. Bristow, **T. C. Hazen**, J. Tiedje, E. Rubin, A. P. Arkin, and J. Zhou. Invited. Insights into Stress Ecology and Evolution of Microbial Communities from Uranium-Contaminated Groundwater Revealed by Metagenomics Analyses. February 2007, North Bethesda, MD. Joint Genomics: GTL Awardee Workshop V and Metabolic Engineering 2007 and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2007. LBNL 62211.
1093. Hwang, C., W.-M. Wu, T. J. Gentry, J. Carley, S. L. Carroll, D. Watson, P. M. Jardine, J. Zhou, **T. C. Hazen**, E. L. Brodie, Y. M. Piceno, G. L. Andersen, E. X. Perez, A. Massol, C. S. Criddle, and M. W. Fields. Invited. Changes in Microbial Community Structure during Biostimulation for Uranium Reduction at Different Levels of Resolution. February 2007, North Bethesda, MD. Joint Genomics: GTL Awardee Workshop V and Metabolic Engineering 2007 and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2007. LBNL 62210.
1094. Klonowska, A., Z. He, Q. He, M. E. Clark, S. B. Thieman, **T. C. Hazen**, E. L. Brodie, R. Chakraborty, E. J. Alm, B. Giles, H.-Y. Holman, A. P. Arkin, J. D. Wall, J. Zhou, and M. W. Fields. Invited. *Desulfovibrio vulgaris* Responses to Hexavalent Chromium at the Community, Population, and Cellular Levels. February 2007, North Bethesda, MD. Joint Genomics: GTL Awardee Workshop V and Metabolic Engineering 2007 and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2007. LBNL 62214.
1095. Sapra, R., S. Gaucher, G. Chirica, C. Kozina, G. Buffleben, R. Phan, D. Joyner, **T. C. Hazen**, A. P. Arkin, and A. K. Singh. Invited. Redox Proteomics In *Desulfovibrio vulgaris* Hildenborough: Search for Proteins That Mediate Stress Response via Post-Translational Modification of the Cys Residues. February 2007, North Bethesda, MD. Joint Genomics: GTL Awardee Workshop V and Metabolic Engineering 2007 and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2007. LBNL 62235.
1096. Walker, C. B., D. Joyner, D. Chivian, S. S. Stolyar, K. Hillesland, J. Gabster, P. Dehal, M. Price, **T. C. Hazen**, A. P. Arkin, P. M. Richardson, D. Bruce, and D. A. Stahl. Invited. Genomic Comparisons between a Metal-resistant Strain of *Desulfovibrio vulgaris* and the Type Strain *D. vulgaris* Hildenborough. February 2007, North Bethesda, MD. Joint Genomics: GTL Awardee Workshop V and Metabolic Engineering 2007 and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2007. LBNL 62207.
1097. Yang, Z., C. W. Schadt, **T. C. Hazen**, and M. Keller. Invited. Towards High-Throughput and High Sensitivity Approaches for Uncovering Total Environmental Gene Expression Patterns. February 2007, North Bethesda, MD. Joint Genomics: GTL Awardee Workshop V and Metabolic Engineering 2007 and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2007. LBNL 62230.
1098. Yen, H.-C., **T. C. Hazen**, Z. Yang, J. Zhou, K. H. Huang, E. J. Alm, A. P. Arkin, and J. D. Wall. Invited. Response of *Desulfovibrio vulgaris* Hildenborough to Acid pH. February 2007, North Bethesda, MD. Joint Genomics: GTL Awardee Workshop V and Metabolic Engineering 2007 and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2007. LBNL 62241.
1099. Zhou, A., Z. He, C. Hemme, A. Mukhopadhyay, J. Keasling, A. P. Arkin, **T. C. Hazen**, J. D. Wall, and J. Zhou. Invited. Global Gene Regulation in *Desulfovibrio vulgaris* Hildenborough. February 2007, North Bethesda, MD. Joint Genomics: GTL Awardee Workshop V and Metabolic Engineering 2007 and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2007. LBNL 62212.
1100. **Hazen, T. C.** Invited. Integrated Omics in Systems Biology: The New Frontier for Environmental Biotechnology, Ecology and Evolution. November 2006, Chapel Hill. University of North Carolina, School of Public Health.
1101. **Hazen, T. C.** Invited. Integrated Omics in Systems Biology: The New Frontier for Environmental Biotechnology, Ecology and Evolution. October 2006, Logan, UT. Utah State University.
1102. Hazen*, T. C., B. Faybishenko, E. Brodie, D. Joyner, S. Borglin, R. Chakraborty, M. Conrad, T. K. Tokunaga, J. Wan, S. Hubbard, K. Williams, J. Peterson, M. Firestone, G. Andersen, T. DeSantis, P. E. Long, D. R. Newcomer, A. Willett, and S. Koenigsberg. Invited. Long-Term Chromium Bio-Immobilization at the Hanford 100H Site: Geochemical and Microbiological Response to Slow Release Electron Donor. October 2006, Oak Ridge, TN. DOE ERSP annual field workshop. LBNL 60236.
1103. Perez*, E. X., E. M. Rodriguez, N. Ramos, C. Shadt, J. Zhou, Y. Piceno, G. L. Andersen, E. L. Brodie, **T. C. Hazen**, and A. Massol-Dêya. Bacteria Diversity in Soil and Sediments from a former Bombing Range (Vieques, PR). September 2006, Mayaguez, Puerto Rico. 3rd Latin American and Caribbean Biotechnology Conference. LBNL 62493.
1104. Ramos-Hernandez*, N., R. Chakraborty, D. C. Joyner, E. X. Perez, A. Massol-Dêya, and **T. C. Hazen**. Contributed. Chemotactic and Growth Responses to Explosives of *Desulfovibrio vulgaris* H. and Sulfate-Reducing Bacteria Isolated from Tropical Marine Sediments. September 2006, Mayaguez, Puerto Rico. 3rd Latin American and Caribbean Biotechnology Conference. LBNL 62424.

1105. **Hazen, T. C.** Invited. Integrated Omics in Systems Biology: The New Frontier for Environmental Biotechnology, Ecology and Evolution. September 2006, Mayaguez, Puerto Rico. 3rd Latin American and Caribbean Biotechnology Conference. LBNL 62496.
1106. **Hazen, T. C.** Invited. Long-Term Chromium Bio-Immobilization at the Hanford 100H Site: Geochemical and Microbiological Response to Slow Release Electron Donor. September 2006, Mayaguez, Puerto Rico. Department of Biology, University of Puerto Rico at Mayaguez. LBNL 62496.
1107. **Hazen, T. C.** Invited Keynote Speaker. Integrated Omics in Systems Biology: The New Frontier for Environmental Biotechnology, Ecology and Evolution. September 2006, Humacao, Puerto Rico. 2da Actividad Regional de Biotechnologia-UPR-Humacao "Biotechnologia en al Dario vivir: mejorando nuestra calidad de vida". LBNL 62496.
1108. **Hazen*, T. C**., A. P. Arkin, M. W. Fields, M. Keller, J. Zhou, G. L. Andersen, E. L. Brodie, D. L. Wyborski, C. B. Abulencia, C. L. Hemme, T. Gentry, D. B. Watson, and P. Richardson. Invited. Ecogenomics for Determining Ecosystem Function in Uranium-Contaminated Environments. September 2006, San Francisco, CA. Bioremediation in Nuclear Environments, Symposium on Analytical Chemistry in Nuclear Technology, ACS fall meeting. LBNL 62497.
1109. Chakraborty*, R., D. C. Joyner. E. Wozei, H.-Y. Holman, and **T. C. Hazen**. Contributed. *Desulfovibrio* strain PCS, a metal reducing pleomorphic sulfate reducing bacterium. August 2006, Vienna, Austria. 11th International Symposium on Microbial Ecology. LBNL 62498.
1110. Chakraborty*, R., E. L. Brodie, R. Phan, Y. Piceno, G. L. Andersen, M. S. Humphrys, T. H. Hazen, P. A. Sobecky, and **T. C. Hazen**. Contributed. Diversity of sulfate-reducing bacteria isolated from the Katrina floodwater in New Orleans. August 2006, Vienna, Austria. 11th International Symposium on Microbial Ecology. LBNL 60258.
1111. Hazen*, T. C. and A. P. Arkin. Contributed. Integration of Omics, Bioinformatics, and Biogeochemistry: The New Frontier for Environmental Biotechnology. August 2006, Vienna, Austria. 11th International Symposium on Microbial Ecology. LBNL 62499.
1112. Hazen*, T. C., A. P. Arkin, M. W. Fields, M. Keller, J. Zhou, G. L. Andersen, E. L. Brodie, D. L. Wyborski, C. B. Abulencia, C. L. Hemme, T. Gentry, D. B. Watson, and P. Richardson. Contributed. Integrated Ecogenomics for Determining Ecosystem Function in a Uranium-Contaminated Environment. August 2006, Vienna, Austria. 11th International Symposium on Microbial Ecology. LBNL 62501.
1113. Brodie*, E. L., **T. C. Hazen**, B. Faybishenko, D. Joyner, S. E. Borglin, R. Chakraborty, E. Shapland, M. Conrad, T. Tokunaga, J. Wan, S. Hubbard, K. Williams, M. Firestone, G. L. Andersen, T. DeSantis, P. E. Long, D. R. Newcomer, and S. Koenigsberg. Contributed. High Density 16S rRNA Microarray Analysis of Long-Term Chromium Bio-immobilization. August 2006, Vienna, Austria. 11th International Symposium on Microbial Ecology. LBNL 62502.
1114. Chivian*, D., E. J. Alm, F. J. Brockman, E. L. Brodie, D. E. Culley, T. Gihring, A. Lapidus, L-H. Lin, D. P. Moser, P. Richardson, A. P. Arkin, **T. C. Hazen**, and T. C. Onstott. Invited. Environmental Genomic Characterization of a Deep Subsurface Microorganism. August 2006, Vienna, Austria. 11th International Symposium on Microbial Ecology. LBNL 62503.
1115. Hazen*, T. C., T. C. Onstott, E. J. Alm, A. P. Arkin, F. J. Brockman, E. L. Brodie, D. Chivan, D. E. Culley, T. Ghring, A. Lapidus, L.-H. Lin, D. P. Moser, and P. Richardson. Contributed. Metagenomic characterization of a deep subsurface microorganism. August 2006, Vienna, Austria. 11th International Symposium on Microbial Ecology. LBNL 62504.
1116. Perez, E. X., E. M. Rodriguez, N. Ramos, C. Shadt, J. Zhou, Y. Piceno, G. L. Andersen, E. L. Brodie, **T. C. Hazen**, and A. Massol-Dêya. Bacteria Diversity in Soil and Sediments from a former Bombing Range (Vieques, PR). August 2006, Berkeley, CA. LBNL Summer Student Presentations.
1117. Ramos-Hernandez, N., R. Chakraborty, D. C. Joyner, E. X. Perez, A. Massol-Dêya, and **T. C. Hazen**. Contributed. Chemotactic and Growth Responses to Explosives of *Desulfovibrio vulgaris* H. and Sulfate-Reducing Bacteria Isolated from Tropical Marine Sediments. August 2006, Berkeley, CA. LBNL Summer Student Presentations **Hazen, T. C.** Invited. Bioremediation technologies for petroleum. August 2006, Beijing, China. Department of Environmental Science & Engineering, Tsinghua University.
1118. **Hazen, T. C.** Invited. Integrated Omics in Systems Biology: The New Frontier for Environmental Biotechnology, Ecology and Evolution. August 2006, Beijing, China. Institute of Microbiology, Chinese Academy of Sciences.
1119. **Hazen, T. C.** Invited. Long-Term Chromium Bio-Immobilization at the Hanford 100H Site: Geochemical and Microbiological Response to Slow Release Electron Donor. August 2006, Beijing, China. Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences.
1120. **Hazen, T. C.** Invited. Integrated Omics in Systems Biology: The New Frontier for Environmental Biotechnology, Ecology and Evolution. August 2006, Changsha, China. Central South University
1121. **Hazen, T. C.** Invited. Advances in Field Research on Bioremediation of Metals and Radionuclides. August 2006, Changsha, China. Central South University.

1122. **Hazen, T. C.** Invited. Stress Response Pathways and Biofilms. June 2006, Bozeman, MT. Inland Northwest Research Alliance meeting on Bioremediation. Center for Biofilm Engineering Montana State University.
1123. Long*, P. E., D. R. Newcomer, C. T. Resch, K. Cantrell, B. Faybishenko, **T. C. Hazen**, E. Brodie, D. Joyner, S. Borglin, J. Hanlon, M. Conrad, T. Tokunaga, J. Wan, S. Hubbard, K. Williams, J. Peterson, M. Firestone, G. Andersen, T. DeSantis, A. Willett, and S. Koenigsberg. Contributed. Evaluation of the Effectiveness of Cr(VI) Biostimulation in Groundwater at Hanford 100H Site. May 2006, Baltimore, MD. Spring meeting of American Geophysical Union.
1124. Faybishenko*, B., **T. C. Hazen**, E. Brodie, D. Joyner, S. Borglin, J. Hanlon, M. Conrad, T. Tokunaga, J. Wan, S. Hubbard, K. Williams, J. Peterson, M. Firestone, G. Andersen, T. DeSantis, P. E. Long, D. R. Newcomer, C. T. Resch, A. Willett, and S. Koenigsberg. Contributed. Tracer Tests and Field Monitoring of In situ Cr(VI) Bioreduction at the Hanford 100H Site. May 2006, Baltimore, MD. Spring meeting of American Geophysical Union.
1125. Brodie*, E., and **T. C. Hazen**. Contributed. Integration of the Omics, Bioinformatics, and Biogeochemistry: The New Frontier for Environmental Biotechnology. May 2006, Monterey, CA. The Fifth International Conference on Remediation of Chlorinated and Recalcitrant Compounds.
1126. Tabak, H. H., and **T. C. Hazen***. Contributed. Advances in Bioremediation of Soils and Sediments Polluted with Metals and Radionuclides: 2. Field Research on Bioremediation of Metals and Radionuclides. May 2006, Monterey, CA. The Fifth International Conference on Remediation of Chlorinated and Recalcitrant Compounds.
1127. Mukhopadhyay*, A., Z. He, E. Alm, A. Arkin, E. Baidoo, S. Borglin, W. Chen, **T. C. Hazen**, Q. He, H-Y. Holman, K. Huang, D. Joyner, M. Keller, P. Oeller, A. Redding, J. Sun, J. Wall, J. Wei, H-C. Yen, J. Zhou, and J. Keasling. Contributed. Salt Stress in *Desulfovibrio vulgaris* Hildenborough: An Integrated Genomics Approach. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1128. Hadi*, M. Z., J. Crawford-Dibble, P. Lane, S. Gaucher, T. Hazen, A. Arkin, and A. Singh. Contributed. High Throughput Methods for Protein Complex Isolation and Identification. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1129. Redding*, A., A. Mukhopadhyay, D. Joyner, **T. C. Hazen**, and J. Keasling. Contributed. Quantitative Proteomic Analysis of Nitrate Stress in *Desulfovibrio vulgaris*. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1130. Tang, Y. J., A. Mukhopadhyay, A. Meadows, R. Huang, **T. C. Hazen**, and J. D. Keasling. Contributed. Investigation of the Central Metabolic Pathways of *Desulfovibrio vulgaris* Hildenborough Using a Minimal Medium with ^{13}C Labeled Lactate. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1131. Chivian*, D., E. J. Alm, F. J. Brockman, E. L. Brodie, D. E. Culley, T. Gihring, A. Lapidus, L-H. Lin, D. P. Moser, P. Richardson, A. P. Arkin, **T. C. Hazen**, and T. C. Onstott. Invited. Environmental Genomic Characterization of a Deep Subsurface Microorganism. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1132. Alm*, E. J., S. E. Borglin, S. C. Chhabra, S. P. Gaucher, M. Hadi, **T. C. Hazen**, Q. He, H-Y. Holman, K. H. Huang, R. Huang, Z. He, D. C. Joyner, J. D. Keasling, M. Keller, K. Keller, A. Mukhopadhyay, A. Redding, A. Singh, D. D. Stahl, S. Stolyar, Z. Yang, J. Wall, G. Zane, J. Zhou, and A. P. Arkin. Comparative Analysis of Bacterial Gene Expression in Response to Environmental Stress. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1133. Yen*, H-C. B., E. Alm, K. Huang, **T. C. Hazen**, A. P. Arkin, J. Zhou, J. D. Wall. Response of *Desulfovibrio vulgaris* to Acid Medium. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1134. Chakraborty*, R., E. L. Brodie, R. Phan, D. Joyner, Y. Piceno, G. L. Andersen, M. S. Humphrys, T. H. Hazen, P. Sobecky, and **T. C. Hazen**. Diversity of Sulfate-Reducing Bacteria Isolated from the Katrina Floodwaters in New Orleans. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1135. Hemme*, C. L., K. Bender, H. C. Yen, Z. Yang, D. Joyner, J. Jacobsen, Z. He, K. Huang, E. Alm, **T. C. Hazen**, A. Arkin, J. Zhou, and J. D. Wall. Characterization of a *Desulfovibrio vulgaris* Hildenborough Mutant Strain Lacking the Ferric Uptake Regulator (fur) Gene. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1136. He*, Z., Q. He, E. J. Alm, J. D. Wall, M. W. Fields, **T. C. Hazen**, A. P. Arkin, and J. Zhou. Contributed. Exploration of salt adaptation mechanisms in *Desulfovibrio vulgaris* Hildenborough. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1137. He*, Q., W. Chen, Z. He, Z. Yang, E. J. Alm, K. H. Huang, H.-C. Yen, D. C. Joyner, M. Keller, A. P. Arkin, **T. C. Hazen**, J. D. Wall, and J. Zhou. Contributed. Nitrate stress response in *Desulfovibrio vulgaris* Hildenborough: Whole-Genome Transcriptomics and proteomics analyses. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1138. Chakraborty*, R., D. Joyner, E. Wozei, H. –Y. Holman, S. P. Lam, and T. C Hazen. Contributed. *Desulfovibrio* strain PCS, a novel metal reducing pleomorphic sulfate reducing bacterium. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.

1139. Hazen*, T. C., B. Faybishenko, E. Brodie, D. Joyner, S. E. Borglin, R. Chakraborty, M. Conrad, T. Tokunaga, J. Wan, S. Hubbard, K. Williams, J. Peterson, M. Firestone, G. Andersen, T. DeSantis, P. E. Long, D. R. Newcomer, A. Willett, and S. Koenigsberg. Contributed. Long-Term Chromium Bio-Immobilization at the Hanford 100H Site: Geochemical and Microbiological Response to Slow Release Electron Donor. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1140. Joyner*, D., A. Mukhopadhyay, R. Chakraborty, S. E. Borglin, and **T. C. Hazen**. Contributed. Anaerobic Phenotype Microarray Method for Knockout Mutant Comparison. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1141. Borglin*, S. E., M. E. Conrad, E. Brodie, K. N. Woods, B. Faybishenko, D. Joyner, and **T. C. Hazen**. Contributed. Assessment of Bioreduction of Cr(VI) Using ^{13}C-PLFA analysis. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1142. Klonowska*, A., Z. He, Q. He, **T. C. Hazen**, S. B. Thieman, E. J. Alm, A. P. Arkin, J. D. Wall, J. Zhou, and M. W. Fields. Contributed. Global Transcriptomic Analysis of Chromium(VI) Exposure of *Desulfovibrio vulgaris* Hildenborough under Sulfate-Reducing Conditions. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1143. Chhabra*, S., S. Gaucher, G. Zane, E. L. Alm, A. P. Arkin, **T. C. Hazen**, J. D. Wall, and A. Singh. Contributed. Investigation of Protein-Protein Interactions in the Metal-Reducing Bacterium *Desulfovibrio vulgaris*. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1144. Hemme*, C. L., T. Gentry, L. Wu, M. W. Fields, K. Barry, C. Detter, C. Schadt, D. C. Bruce, D. Watson, **T. C. Hazen**, J. Tiedje, P. Richardson, E. Rubin, and J. Zhou. Contributed. Metagenomic Analysis of Uranium-Contaminated Groundwater. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1145. Holman*, H-.Y. N., E. Wozei, and **T. C. Hazen**. Contributed. Molecular Observations of Anaerobes in Atmospheric Oxygen. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1146. Stolyar*, S., Q. He, E. L. Alm, K. Huang, K. L. Hillesland, **T. C. Hazen**, S. E. Borglin, D. Joyner, A. P. Arkin, J. Zhou, and D. Stahl. Contributed. Genome wide gene expression analysis of response of *Desulfovibrio vulgaris* to high pH. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1147. Elias, D., I. B. Hilton*, G. M. Zane, **T. C. Hazen**, M. D. Biggin, and J. D. Wall. Contributed. High-throughput Identification of Multi-protein Complexes via TAP tagging in *Desulfovibrio vulgaris*. May 2006, Orlando, FL. American Society for Microbiology Annual Meeting.
1148. Long*, P. E., **T. C. Hazen**, B. Faybishenko, E. Brodie, D. Joyner, S. Borglin, R. Chakraborty, M. Conrad, T. K. Tokunaga, J. Wan, S. Hubbard, K. Williams, J. Peterson, M. Firestone, G. Andersen, T. DeSantis, D. R. Newcomer, A. Willett, and S. Koenigsberg. Invited. Field Investigations of Lactate-Stimulated Bioreduction of Cr(VI) to Cr(III) at Hanford 100-H Area. April 2006, Richland, WA. Invited presentation to the Hanford Site Unit Manager Meeting.
1149. **Hazen, T. C.** Invited. Integrated Omics in Systems Biology: The New Frontier for Environmental Biotechnology, Ecology and Evolution. April 2006, Miami, OH. Orton K. Stark General Lecture, Miami University.
1150. **Hazen, T. C.** Invited. Bioremediation: Cleaning up using Natures Natural Cleansing Capacity. April 2006, Miami, OH. Orton K. Stark General Lecture, Miami University.
1151. Zhou*, J., T. Gentry, C. Hemme, L. Wu, M. W. Fields, C. Detter, K. Barry, D. Watson, C. W. Schadt, P. Richardson, **T. C. Hazen**, J. Tiedje, and E. Rubin. Contributed. Metagenomic Analysis of Microbial Communities in Uranium-contaminated Groundwaters. April 2006, Halifax, Canada. Microbial Genomes Conference 2006.
1152. Tokunaga*, T. K., J. Wan, M. K. Firestone, and **T. C. Hazen**. Invited. Mesoscale Biotransformation of Uranium. April 2006, Warrenton, VA. DOE ERSP annual workshop.
1153. **Hazen, T. C.** Invited. Stimulating the Microbial Reduction of Chromium. April 2006, Warrenton, VA. DOE ERSP annual workshop.
1154. Clark*, M. E., Q. He, Z. He, K. H. Huang, E. J. Alm, X. Wan, **T. C. Hazen**, A. P. Arkin, J. D. Wall, J. Zhou, and M. W. Fields. Invited. Construction of Whole Genome Microarrays, and Expression Analysis of *Desulfovibrio vulgaris* Cells in Metal-Reducing Conditions: Temporal Transcriptomic Analysis of *Desulfovibrio vulgaris* Hildenborough Transition into Stationary Phase during Electron Donor Depletion. April 2006, Warrenton, VA. DOE ERSP annual workshop.
1155. Hazen*, T. C., B. Faybishenko, E. Brodie, D. Joyner, S. Borglin, R. Chakraborty, M. Conrad, T. K. Tokunaga, J. Wan, S. Hubbard, K. Williams, J. Peterson, M. Firestone, G. Andersen, T. DeSantis, P. E. Long, D. R. Newcomer, A. Willett, and S. Koenigsberg. Invited. Long-Term Chromium Bio-Immobilization at the Hanford 100H Site: Geochemical and Microbiological Response to Slow Release Electron Donor. April 2006, Warrenton, VA. DOE ERSP annual workshop.
1156. **Hazen, T. C.** Invited. Omics and Bioremediation Breakout Session. April 2006, Warrenton, VA. DOE ERSP annual workshop.
1157. **Hazen, T. C.** Invited. Genomics:GTL and ERSP. April 2006, Warrenton, VA. DOE ERSP annual workshop.

1158. Chivian*, D., E. J. Alm, F. J. Brockman, E. L. Brodie, D. E. Culley, T. Gihring, A. Lapidus, L-H. Lin, D. P. Moser, P. Richardson, A. P. Arkin, **T. C. Hazen**, and T. C. Onstott. Environmental Genomic Characterization of a Deep Subsurface Microorganism. March 2006, Walnut Creek, CA. JGI Users Meeting.
1159. Zhou*, J., T. Gentry, C. Hemme, L. Wu, M. W. Fields, C. Detter, K. Barry, D. Watson, C. W. Schadt, P. Richardson, **T. C. Hazen**, J. Tiedje, and E. Rubin. Contributed. Metagenomic Analysis of Microbial Communities in Uranium-contaminated Groundwaters. March 2006, Walnut Creek, CA. JGI Users Meeting.
1160. **Hazen, T. C.** Invited. Engineered Microbial Systems. March 2006, Atlanta, GA. Georgia Tech Environmental Systems Microbiological Symposium.
1161. Onstott*, T. C., **T. C. Hazen**, E. J. Alm, A. P. Arkin, F. J. Brockman, E. L. Brodie, D. Chivan, D. E. Culley, T. Ghring, A. Lapidus, L.-H. Lin, D. P. Moser, and P. Richardson. Contributed. Metagenomic characterization of a deep subsurface microorganism. March 2006, Washington, DC. NASA Astrobiology. AbSciCon2006.
1162. Hazen*, T. C. and H. H. Tabak. Invited. Field Research on Bioremediation of Metal Contamination in Soils and Sediments. March 2006, San Diego, CA. The Sixteenth Annual AEHS Meeting and West Coast Conference on Soils, Sediments and Water.
1163. **Hazen, T. C.** Moderator. Bioremediation Strategies for Contaminated Sediments. March 2006, San Diego, CA. The Sixteenth Annual AEHS Meeting and West Coast Conference on Soils, Sediments and Water.
1164. Hazen*, T. C., H.-Y. N. Holman, J. Keasling, A. Mukhopadhyay, S. Chhabra, T. Torok, J. D. Wall, and M. D. Biggin. Invited. Protein Complex Analysis Project (PCAP): High Throughput Identification and Structural Characterization of Multi-Protein Complexes during Stress Response in Desulfovibrio vulgaris: Microbiology Subproject. February 2006, Washington, DC. DOE Genomics:GTL Annual Workshop.
1165. Biggin*, M. D., D. Elias, S. Chhabra, H.-Y. Holman, J. Keasling, A. Mukhopadhyay, T. Torok, J. Wall, **T. C. Hazen**, M, Dong, S. Hall, B. K. Jap, J. Jin, S. Fisher, P. J. Walian, H. E, Witkowska, M. Auer, R. M. Glaeser, J. Malik, J. P. Remis, D. Typke, K. H. Downing, A. P. Arkin, S. E. Brenner, J. Jacobsen, and J.-M. Chandonia. Invited. Protein Complex Analysis Project (PCAP): High Throughput Identification and Structural Characterization of Multi-Protein Complexes during Stress Response in *Desulfovibrio vulgaris*: Project Overview. February 2006, Washington, DC. DOE Genomics:GTL Annual Workshop.
1166. Wall*, J. D., H.-C. Yen, E. C. Drury, A. Mukhopadhyay, S. Chhabra, Q. He, M. W. Fields, A. Singh, J. Zhou, **T. C. Hazen**, and A. P. Arkin. Invited. Evaluation of stress responses in sulfate-reducing bacteria through genome analysis: identification of universal responses. February 2006, Washington, DC. DOE Genomics:GTL Annual Workshop.
1167. Wyborski, D. L., C. B. Abulencia, J. A. Garcia, M. Podar, W. Chen, S. H. Chang, H. W. Chang, **T. C. Hazen**, M. Keller*. Invited. Environmental Whole-Genome Amplification to Access Microbial Diversity in Contaminated Sediments. February 2006, Washington, DC. DOE Genomics:GTL Annual Workshop.
1168. Mukhopadhyay, A., E. J. Alm, A. P. Arkin, E. E. Baidoo, P. I. Benke, S. E. Borglin, W. Chen, S. Chhabra, M. W. Fields, S. P. Gaucher, A. Gilman, M. Hadi, **T. C. Hazen**, Q. He, H.-Y. Holman, K. Huang, R. Huang, Z. He, D. C. Joyner, M. Keller, K. Keller, P. Oeller, F. Pingitore, A. Redding, A. Singh, D. Stahl, S. Stolyar, J. Sun, Z. Yang, J. D. Wall, G. Zane, J. Zhou, and J. D. Keasling*. Invited. VIMSS Functional Genomics Core Research on Stress Response Pathways in Metal-Reducers. February 2006, Washington, DC. DOE Genomics:GTL Annual Workshop.
1169. Clark, M. E., Q. He, Z. He, K. H. Huang, E. J. Alm, X. Wan, **T. C. Hazen**, A. P. Arkin, J. D. Wall, J. Zhou, J. Kurowski, A. Sundararajan, A. Klonowska, D. Klingeman, T. Yan, M. Duley, and M. W. Fields*. Invited. Temporal Transcriptomic Analysis of *Desulfovibrio vulgaris* Hildenborough Transition into Stationary-Phase Growth during Electron Donor Depletion. February 2006, Washington, DC. DOE Genomics:GTL Annual Workshop.
1170. Gaucher, S., M. Hadi, S. Chhabra, E. Alm, G. Zane, D. C. Joyner, A. P. Arkin, **T. C. Hazen**, J. D. Wall, and A. Singh*. Invited. Investigation of Protein-Protein Interactions in the Metal-Reducing Bacterium *Desulfovibrio vulgaris*. February 2006, Washington, DC. DOE Genomics:GTL Annual Workshop.
1171. Abulencia, C., E. Alm, G. Anderson, A. P. Arkin*, K. Bender, S. Borglin, E. Brodie, R. Chakraborty, S. Chhabra, S. van Dien, I. Dubchak, M. Fields, S. Gaucher, J. Geller, M. Hadi, **T. C. Hazen**, Q. He, Z. He, H.-Y. Holman, K. Huang, R. Huang, J. Jacobsen, D. Joyner, J. Keasling, K. Keller, M. Keller, A. Mukhopadhyay, R. Phan, M. Price, J. A. Ringbauer, Jr., A. Singh, D. Stahl, S. Stolyar, J. Sun, D. Thompson, C. Walker, J. Wall, J. Wei, D. Wolf, D. Wyborski, H.-C. Yen, G. Zane, J. Zhou, and B. Zuniga. Invited. The Virtual Institute of Microbial Stress and Survival (VIMSS): Deduction of Stress Response Pathways in Metal/Radionuclide Reducing Microbes. February 2006, Washington, DC. DOE Genomics:GTL Annual Workshop.
1172. **Hazen*, T. C.,** C. Abulencia, G. L. Anderson, S. E. Borglin, E. Brodie, S. van Dien, M. Fields, J. Geller, H.-Y. Holman, R. Huang, R. Phan, E. Wozei, J. Jacobsen, D. Joyner, R. Chakraborty, M. Keller, A. Mukhopadhyay, D. Stahl, S. Stolyar, J. D. Wall, D. Wyborski, H.-C. Yen, G. Zane, J. Zhou, E. Hendrickson, T. Lie, J. Leigh, and C.

Walker. Invited. VIMSS Applied Environmental Microbiology Core Research on Stress Response Pathways in Metal-Reducers. February 2006, Washington, DC. DOE Genomics:GTL Annual Workshop.

1173. Alm*, E. J., E. E. Baidoo, P. I. Benke, S. E. Borglin, W. Chen, S. Chhabra, M. W. Fields, S. P. Gaucher, A. Gilman, M. Hadi, **T. C. Hazen**, Q. He, H.-Y. Holman, K. Huang, R. Huang, Z. He, D. C. Joyner, J. D. Keasling, M. Keller, K. Keller, A. Mukhopadhyay, P. Oeller, F. Pingitore, A. Redding, A. Singh, D. Stahl, S. Stolyar, J. Sun, Z. Yang, J. D. Wall, G. Zane, J. Zhou, and A. P. Arkin. Invited. Comparative Analysis of Bacterial Gene Expression in Response to Environmental Stress. February 2006, Washington, DC. DOE Genomics:GTL Annual Workshop.
1174. Li*, T., J. Guo, D. Klingeman, L. Wu, X. Liu, T. Yan, Y. Xu, A. Beliaev, Z. He, **T. C. Hazen**, A. P. Arkin, and J. Zhou. Invited. H_2O_2-Induced Stress Responses of *Shewanella oneidensis* MR-1. February 2006, Washington, DC. DOE Genomics:GTL Annual Workshop.
1175. Zhou*, J., T. Gentry, C. Hemme, L. Wu, M. W. Fields, C. Detter, K. Barry, D. Watson, C. W. Schadt, P. Richardson, J. Bristow, **T. C. Hazen**, J. Tiedje, and E. Rubin. Invited. Metagenomic Analysis of Microbial Communities in Uranium-Contaminated Groundwaters. February 2006, Washington, DC. DOE Genomics:GTL Annual Workshop.
1176. He*, Q., Z. He, W. Chen, Z. Yang, E. J. Alm, K. H. Huang, H.-C. Yen, D. C. Joyner, M. Keller, J. Keasling, A. P. Arkin, **T. C. Hazen**, J. D. Wall, and J. Zhou. Invited. Nitrate stress response in *Desulfovibrio vulgaris* Hildenborough: Whole-Genome Transcriptomics and proteomics analyses. February 2006, Washington, DC. DOE Genomics:GTL Annual Workshop.
1177. **Hazen, T. C.** Invited. Microbial Ecology in the deep subsurface. February 2006, Lead, SD. NSF Deep Underground Science and Engineering Lab Workshop.
1178. **Hazen, T. C.** Invited. Tutorial on Systems Biology and Bioremediation. January 2006, Winston-Salem, NC. Wake Forest University
1179. **Hazen, T. C.** Invited. Integrated Omics in Systems Biology: The New Frontier for Environmental Biotechnology, Ecology and Evolution. January 2006, Winston-Salem, NC. Wake Forest University.
1180. Hubbard*, S., J. Peterson, J. Chen, K. Williams, M. Conrad, B. Faybishenko, A. Willet, P. Long, and **T. C. Hazen**. Contributed. Geophysical Monitoring of Cr(VI) bioreduction at the Hanford 100H Site. December 2005, San Francisco, CA. Annual Meeting of the American Geophysical Union.
1181. _____ Newspaper. Today at Berkeley Lab. Volunteers make 'Edge' big success. http://www.lbl.gov/today/ November 3, 2005.
1182. **Hazen, T. C.** Invited. VIMSS linkage to NABIR FRC. October 2005, Oak Ridge, TN. Annual NABIR FRC Workshop.
1183. Wyborski, D. L., C. B. Abulencia, B. Buchner, D. Burton, C. Chang, J. Garcia, **T. C. Hazen**, K. Obokata, M. Podar, T. Torok, and M. Keller. Contributed. Analysis of Organisms Surviving in Highly Contaminated Environments. October 2005, Oak Ridge, TN. Annual NABIR FRC Workshop.
1184. **Hazen, T. C.** Invited. Integration of the Omics, Bioinformatics, and Biogeochemistry in Groundwater Remediation. October 2005, San Diego, CA. International Conference on Safe Water, Exploring Global Demands and Impacts of Natural Disasters, SAFEWATER 2005.
1185. Conrad*, M. E., S. E. Borglin, E. Brodie, K. N. Woods, B. Faybishenko, **T. C. Hazen**, P. E. Long, and A. Willett. Contributed. Quantification of enhanced bioreduction of Cr(VI) using 13C-PLFA monitoring coupled with advance microbiological techniques. October 2005, Salt Lake City, UT. Annual Meeting Geological Society of America.
1186. **Hazen, T. C.** Invited. Omics and Biogeochemistry: The New Frontier for Environmental Biotechnology (Lab to the Field and back). October 2005, Berkeley, CA. Department of Plant and Microbial Biology, University of California at Berkeley.
1187. **Hazen, T. C.** Invited Plenary. Environmental Biotechnology and Bioremediation. October 2005, Warrenton, VA. 2005 ASTAR National Boot Camp for Maryland and Ohio ASTA Resource Judges and Guest Jurists, The Language of the Life Sciences at the Airlie Conference Center.
1188. **Hazen, T. C.** Invited. Intimate Strangers: The Anatomy, Ecology & Engineering of Microorganisms. October 2005, Warrenton, VA. 2005 ASTAR National Boot Camp for Maryland and Ohio ASTA Resource Judges and Guest Jurists, The Language of the Life Sciences at the Airlie Conference Center.
1189. **Hazen, T. C.** Panel Interlocutor. Biological Agents: Threat, Preparedness, Response and Myths. October 2005, Warrenton, VA. 2005 ASTAR National Boot Camp for Maryland and Ohio ASTA Resource Judges and Guest Jurists, The Language of the Life Sciences at the Airlie Conference Center.
1190. Posner, M. Newspaper. ….At Lawrence Berkeley. Weapons Complex Monitor: Waste Management and Cleanup 16:11. October 24, 2005.
1191. Yarris, L. Newspaper. DNA Chip Scans for Disease-Causing Microbes. Berkeley Lab VIEW 3 (17): 5. October 14, 2005

1192. ----. Newspaper. Bissell and Hazen Honored as BER Distinguished Scientists. Berkeley Lab VIEW 3(17):7. October 14, 2005
1193. Woodruff, A. Newspaper. Device Exposes Katrina's Bacteria. Picture and article featuring T. Hazen and G. Andersen. The Daily California. October 12, 2005. Berkeley, CA.
1194. Posner, M. Newspaper. LBNL Bioremediation Experiments show promise in Hanford 100-H Area. Weapons Complex Monitor: Waste Management and Cleanup 16:12. October 10, 2005.
1195. _____ Newspaper. Today at Berkeley Lab. Bioremediation, Breast Cancer Work Awarded. http://www.lbl.gov/today/ October 4, 2005.
1196. _____ Newspaper. Today at Berkeley Lab. 'Phylochip' Scans Flood Areas for Contaminants. http://www.lbl.gov/today/ September 28, 2005.
1197. Hazen*, T. C., E. Brodie, F. Brockman, D. Moser, T. Gihring, D. Culley, L-H. Lin, T. Pray, G. Andersen, P. Richardson, L. Pratt, and T. C. Onstott. Contributed. Comparison of planktonic and biofilm microbial communities in million year old fissure water from a deep subsurface gold mine. August 2005, Jackson Hole, WY. International Symposium Subsurface Microbiology.
1198. **Hazen, T. C.** Moderator. Molecular Biology Characterization of Subsurface Microbial Communities. August 2005, Jackson Hole, WY. International Symposium Subsurface Microbiology.
1199. Brodie, E. L.*, T. Z. DeSantis, J. P. Moberg, I. X. Zubieta, Y. M. Piceño, **T. C. Hazen**, and G. L. Andersen. Contributed. A High Density Microarray for Rapid Profiling of 16S rDNA and 16S rRNA of Prokaryotic Communities. August 2005, Jackson Hole, WY. International Symposium Subsurface Microbiology.
1200. **Hazen*, T. C**., B. Faybishenko, E. Brodie, D. Joyner, S. E. Borglin, J. Hanlon, M. Conrad, T. Tokunaga, J. M. Wan, S. Hubbard, K. Williams, J. Peterson, M. K. Firestone, G. L. Andersen, T. DeSantis, P. E. Long, D. R. Newcomer, A. Willett, and S. Koenigsberg. Contributed. Chromium Bio-Immobilization at the Hanford 100H Site: Geochemical Response to Slow Release Electron Donor. July 2005, San Francisco, CA. International Union of Microbiological Societies.
1201. Brodie*, E., **T. C. Hazen**, B. Faybishenko, D. Joyner, S. Borglin, M. Conrad, G. Andersen, T. DeSantis, P. Long, D. Newcomer, A. Willett, and S. Koenigsberg. Contributed. Chromium Bio-Immobilization at the Hanford 100H site: Comprehensive Molecular Analysis of Microbial Population Dynamics. July 2005, San Francisco, CA. International Union of Microbiological Societies.
1202. **Hazen, T. C.** Invited. The Impact of Environmental Biotechnology in Bioremediation – The Dawning of the "Age of Omics". July 2005, Berkeley, CA. LBNL Center for Environmental Biotechnology Summer Student Seminar.
1203. **Hazen, T. C.** Invited. In situ bioremediation and applicability to geobioreactors. July 2005, Denver, CO. Luca Technologies.
1204. **Hazen, T. C.** Invited. Bioremediation technologies for petroleum. June 2005, Usinsk, Russia. LuK Oil Company.
1205. **Hazen, T. C.** Invited. Evaluation of sorption/bioremediation product application. June 2005, Syktyvkar, Russia. Institute of Biology, Komi Republic.
1206. **Hazen, T. C.** Invited. Evaluation of sorption/bioremediation product application. June 2005, Moscow, Russia. International Science & Technology Center.
1207. **Hazen, T. C.** Invited. The Impact of Environmental Biotechnology in Bioremediation – The Dawning of the "Age of Omics". June 2005, Baltimore, MD. Eighth International Conference on In Situ and On-Site Bioremediation.
1208. **Hazen, T. C.**, B. Faybishenko, E. Brodie, D. Joyner, S. E. Borglin, J. Hanlon, M. Conrad, T. Tokunaga, J. M. Wan, S. Hubbard, K. Williams, J. Peterson, M. K. Firestone, G. L. Andersen, T. DeSantis, P. E. Long, D. R. Newcomer, A. Willett, and S. Koenigsberg. Contributed. Chromium Bio-Immobilization at the Hanford 100H Site: Geochemical Response to Slow Release Electron Donor. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1209. Chhabra*, S. R., Q. He, Z. He, S. Gaucher, E. Alm, M. Hadi, A. P. Arkin, **T. C. Hazen**, J. Zhou, and A. K. Singh. Contributed. Analysis of the heat shock response in *Desulfovibrio vulgaris* through global proteomics and transcriptomics studies. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1210. Brodie*, E., **T. C. Hazen**, B. Faybishenko, D. Joyner, S. Borglin, M. Conrad, G. Andersen, T. DeSantis, P. Long, D. Newcomer, A. Willett, and S. Koenigsberg. Contributed. Chromium Bio-Immobilization at the Hanford 100H site: Comprehensive Molecular Analysis of Microbial Population Dynamics. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1211. Ringbauer, Jr., J. A., R. B. Payne, H. Zhili, H. Qiang, W. Liyou, Z. Jizhong, M. W. Fields, E. Alm, K. Huang, **T. C. Hazen**, A. Arkin, and J. D. Wall. Contributed. Transposon Mutagenesis of *Desulfovibrio vulgaris* Yields Insight into Sodium and pH Stresses. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1212. Wyborski, D. L., C. B. Abulencia, B. Buchner, D. Burton, C. Chang, J. Garcia1, **T. C. Hazen**, K. Obokata, M. Podar, T. Torok, and M. Keller. Contributed. Analysis of Organisms Surviving in Highly Contaminated Environments. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.

1213. He*, Q., Z. He, K. H. Huang, E. J. Alm, A. P. Arkin, J. D. Wall, **T. C. Hazen**, M. W. Fields, and J. Zhou. Contributed. Whole-Genome Transcriptional Response of Desulfovibrio vulgaris to Nitrite. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1214. He*, Q., Z. He, L. Wu, A. P. Arkin, **T. C. Hazen**, J. D. Wall, M. W. Fields, D. A. Stahl, and J. Zhou. Contributed. Transcriptional Gene Expression Analysis of the Response to Acetone in Desulfovibrio vulgaris Using Whole-Genome Oligonucleotide Microarrays. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1215. Alm, E., A. Arkin*, **T. C. Hazen**, J. Keasling, M. Keller, A. Mukhopadhyay, A. Singh, D. Stahl, D. Thompson, J. Wall, and J. Zhou. Contributed. A Powerful Integrated Approach to the Systems-Level Response of Bacteria to Environmental Stress. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1216. Huang*, R., D. Joyner, S. Borglin, **T. C. Hazen**, and N. Katz. Contributed. Large Scale Biomass Production of Obligate Anaerobes for Simultaneous Transcriptomics, Proteomics, Metabolomics, and Lipidomics Analysis. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1217. Holman*, H-Y. N., L. R. Comolli, E. Wozei, **T. C. Hazen**, and K. H. Downing. Contributed. Real-Time Observations of Chemical and Structural Aspects of *Desulfovibrio vulgaris* and *Caluobacter crescentis* in Atmospheric Oxygen. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1218. Barua*, S., C. McAlvin, C. Hemme, S. Borglin, Y. Yang, D. Thompson, **T. C. Hazen**, and J. Zhou. Contributed. Role of a LysR Family Transcriptional Regulator in Response to Osmotic Stress in *Shewanella oneidensis* MR1. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1219. Holman*, H-Y. N., S. E. Borglin, **T. C. Hazen**, D. Joyner, R. Huang, N. Katz, and E. Wozei. Contributed. Spectral Comparisons Reveal General Stress Response Strategies in *Desulfovibrio vulgaris*. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1220. Fields*, M. W., T. Yan, X. Liu, C. E. Bagwell, S. L. Carroll, P. M. Jardine, D. B. Watson, C. S. Criddle, **T. C. Hazen**, and J. Zhou. Contributed. Identification of Different Relationships between Contaminated Groundwater Samples Based upon Extensive Geochemical Data or Multiple Gene Sequences from Microbial Communities. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1221. Clark*, M. E., Z. He, Q. He. L. Wu, J. D. Wall, **T. C. Hazen**, J. Zhou, and M. W. Fields. Contributed. Whole-Genome Transcriptional Response of *Desulfovibrio vulgaris* Hildenborough to Nitrite. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1222. Borglin*, S. E., **T. C. Hazen**, E. Alm, D. Joyner, R. Huang, N. K. Katz. Contributed. Phospholipid Fatty Acid Analysis as Phenotypic Indicators of Common Stress Response Pathways in *Desulfovibrio vulgaris* and *Shewanella oneidensis*. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1223. Borglin*, S. E., **T. C. Hazen**, J. Carlson, J. D. Wall, and D. Joyner. Contributed. Phenotypic Microarray Analysis of *Desulfovibrio vulgaris*. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1224. Stolyar*, S., C. Walker, H.-C. Yenc, B. Zuniga, N. Pinel, H. Gough, Z. He, Q. He, J. Zhou, **T. C. Hazen**, S. E. Borglin, J. D. Wall, and D. A. Stahl. Contributed. Genomic and physiological characterization of *Desulfovibrio vulgaris* strains isolated from a metal contaminated lake. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1225. Katz*, N., **T. C. Hazen**, R. Huang, D. Joyner, and S. E. Borglin. Contributed. High Throughput Analysis of Stress Growth Response in *Shewanella oneidensis* MR-1. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1226. He*, Z., Q. He, E. J. Alm, J. D. Wall, M. W. Fields, **T. C. Hazen**, A. P. Arkin, and J. Zhou. Contributed. Adaptation of *Desulfovibrio vulgaris* to Elevated NaCl Conditions. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1227. Geller*, J., **T. C. Hazen**, R. Huang, D. Joyner, and S. E. Borglin. Contributed. Characterization of *Desulfovibrio vulgaris* Grown in Extremophile Turbidostat Reactors. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1228. Fields*, M. W., M. E. Clark, Z. He, Q. He, L. Wu, J. D. Wall, **T. C. Hazen**, and J. Zhou. Contributed. Whole-Genome Expression Analysis of *Desulfovibrio vulgaris* Cells throughout Exponential Phase into Stationary Phase Growth in a Defined Medium. June 2005, Atlanta, GA. Annual Meeting American Society for Microbiology.
1229. **Hazen, T. C.** Invited. Integration of the Ecogenomics, Proteomics, Bioinformatics, and Biogeochemistry: The New Frontier for Environmental Biotechnology. April 2005, Durham, NH. University of New Hampshire.
1230. **Hazen, T. C.**, and L. Krumholz. Invited Workshop. What changes in microbial community structure can be expected during and after biostimulation. April 2005, Warrenton, VA. DOE NABIR Annual Investigators Meeting.
1231. **Hazen, T. C.** Invited Presentation. Field-Integrated Studies of Long-Term Sustainability of Chromium Bioreduction at the Hanford 100H Site. April 2005, Warrenton, VA. DOE NABIR Annual Investigators Meeting.

1232. He, Z., M. E. Clark, Q. He, L. Wu, J. D. Wall, **T. C. Hazen**, J. Zhou, and M. W. Fields. Invited. Field-Integrated Construction of Whole Genome Microarrays, and Expression Analysis of *Desulfovibrio vulgaris* Cells under Metal-Reducing Conditions. April 2005, Warrenton, VA. DOE NABIR Annual Investigators Meeting.
1233. Tokunaga, J. Wan, **T. C. Hazen**, M. Firestone, E. Brodie, Z. Zheng, J. Larsen, and D. Herman. Invited. Mesoscale Biotransformation of Uranium. April 2005, Warrenton, VA. DOE NABIR Annual Investigators Meeting.
1234. **Hazen, T. C.**, B. Faybishenko, E. Brodie, D. Joyner, S. E. Borglin, J. Hanlon, M. Conrad, T. Tokunaga, J. M. Wan, S. Hubbard, K. Williams, J. Peterson, M. K. Firestone, G. L. Andersen, T. DeSantis, P. E. Long, D. R. Newcomer, A. Willett, and S. Koenigsberg. Invited. Field-Integrated Studies of Long-Term Sustainability of Chromium Bioreduction at the Hanford 100H Site. April 2005, Warrenton, VA. DOE NABIR Annual Investigators Meeting.
1235. Brockman*, F., D. Moser, T. Gihring, D. Culley, E. Brodie, G. Andersen, **T. C. Hazen**, P. Richardson, L. Pratt, and T. C. Onstott. Contributed. Inferred bioenergetics of an uncultured bacterium common in fracture fluids of South African deep mines. April 2005, Boulder, CO. NAI (NASA Astrobiology Institute) 2005 Biennial Meeting.
1236. **Hazen, T. C.** Invited. Integration of the Ecogenomics, Proteomics, Bioinformatics, and Biogeochemistry: The New Frontier for Environmental Biotechnology. March 2005, Santa Barbara, CA. University of California at Santa Barbara, Bren School of Engineering.
1237. **Hazen, T. C.** Invited. Integration of the Omics, Bioinformatics, and Biogeochemistry: The New Frontier for Environmental Biotechnology. March 2005, Palo Alto, CA. Stanford University, Department of Civil and Environmental Engineering.
1238. **Hazen, T. C.** Invited. Integration of the Omics, Bioinformatics, and Biogeochemistry: The New Frontier for Environmental Biotechnology. March 2005, San Diego, CA. 15th Annual AEHS West Coast Conference on Soils, Sediments, and Water.
1239. **Hazen, T. C.** Invited Workshop. Bioremediation of Metals and Radionuclides at DOE Sites. January 2005, Phoenix, AZ. Consensus Conference to Characterize Regulatory Concerns Regarding Bioremediation of Radionuclides and Heavy Metals in Mixed Wastes at Doe Sites.
1240. Wang, J. S. Y., **T. C. Hazen**, M. E. Conrad, L. R. Johnson, and R. Salve. Invited. Potential sites for Integrated Earth Science Research in Deep Underground Laboratories. December 13, 2004, San Francisco, CA. American Geophysical Union Annual Meeting.
1241. **Hazen, T. C.** Invited Workshop. Biopile Case Studies for landfills and petroleum contaminated soils. November 2004, Milan, Italy. On site remediation technologies: engineering of soil washing, land farming and biopile applications.
1242. **Hazen, T. C.** Invited. Ecogenomics and Phenomics the New Frontier in Bioremediation of Toxic Waste Sites. November 2004, Berkeley, CA. LBNL Life Sciences & Genomics Seminar Series.
1243. **Hazen, T. C.** Invited Keynote. Integration of Ecogenomics, Phenomics, Transcriptomics, Proteomics, Lipidomics, Metabolomics, Fluxomics, Bioinformatics, and Biogeochemistry: The New Frontier for Environmental Biotechnology. November 2004, Seattle, WA. NIH/EPA Annual Superfund Research Meeting.
1244. **Hazen, T. C.** Invited Dinner Talk. Risk and Environmental Cleanup, some Global Issues. September 2004, Berkeley, CA. Workshop on Oral Bioavailability of Organic Compounds.
1245. **Hazen, T. C.**, and A. P. Arkin. Invited. Roundtable on Rapid Deduction of Stress Response Pathways in Metal-Reducing Bacteria: Ecology, Functional Genomics, and Bioinformatics. August 2004, Cancun, Mexico. International Symposium on Microbial Ecology - 10.
1246. Brodie*, E., J. Larsen, **T. C. Hazen**, J. M. Wan, T. K. Tokunaga, D. Joyner, G. L. Andersen, T. DeSantis, P. Richardson, and M. Firestone. Contributed. High-density oligonucleotide array monitoring of bacterial community dynamics during carbon stimulated uranium bioremediation. August 2004, Cancun, Mexico. International Symposium on Microbial Ecology - 10. (LBNL-54787 Abs.)
1247. Wan*, J. M., T. K. Tokunaga, J. Larson, Z. Zheng, **T. C. Hazen**, D. Herman, E. Brodie, M. K. Firestone. Contributed. Oxidation of bioreduced Uranium under reducing conditions. August 2004, Cancun, Mexico. International Symposium on Microbial Ecology - 10. ()
1248. Tokunaga, T. K., J. Wan, J. Pena, E. Brodie, M. K. Firestone, **T. C. Hazen**, and S. R. Sutton. Contributed. Uranium bioreduction dynamics in low permeability sediments. August 2004, Cancun, Mexico. International Symposium on Microbial Ecology - 10. ()
1249. Fields*, M. W., T. Yan, X. Liu, C. E. Bagwell, S. L. Carroll, P. M. Jardine, C. S. Criddle, **T. C. Hazen**, and J. Zhou. Contributed. Polyphasic characterization of microbial communities under the stressful conditions of nitrate, heavy metals, radionuclides, and acidic pH in contaminated groundwater. August 2004, Cancun, Mexico. International Symposium on Microbial Ecology - 10. (LBNL-54788 Abs.)
1250. Holman, H.-Y., Z. Lin, **T. C. Hazen***, and D. C. Joyner. Contributed. A real-time investigation of *Desulfovibrio vulgaris* response to oxygen stress. August 2004, Cancun, Mexico. International Symposium on Microbial Ecology - 10. (LBNL-54807 Abs.)

1251. Borglin*, S. E., **T. C. Hazen**, D. C. Joyner, and R. Huang. Contributed. Effects of Environmental stressors on Signature Lipid Biomarkers in *Desulfovibrio vulgaris*. August 2004, Cancun, Mexico. International Symposium on Microbial Ecology - 10. (LBNL-54809 Abs.)
1252. Hazen*, T. C., D. Joyner, S. Borglin, B. Faybishenko, J. Wan, T. Tokunaga, S. Hubbard, K. Williams, M. Conrad, C. Rios-Velazquez, J. Malave-Orengo, R. Martinez-Santiago, M. Firestone, E. Brodie, P. E. Long, E. Willett, and S. Koenigsberg. Contributed. Functional Microbial Changes during Lactate and HRC-Stimulated Bioreduction of Cr(VI) in Hanford 100H Sediments. August 2004, Cancun, Mexico. International Symposium on Microbial Ecology - 10. (LBNL-54808 Abs.)
1253. **Hazen, T. C.**, and A. P. Arkin. Invited. Workshop on Stress in Metal-Reducing Bacteria: Ecology, Functional Genomics, and Bioinformatics. July 2004, Anaheim, CA. Society for Industrial Microbiology Annual Meeting.
1254. **Hazen, T. C.** Invited. Recent Advances in Bioremediation. July 2004, Berkeley, CA. CEB Summer Student Lectures.
1255. **Hazen, T. C.** Invited Keynote. Recent Advances in Bioremediation. June 2004, Chicago, IL. Seventh Biennial Symposium of the International Society of Environmental Biotechnology.
1256. _____ Newspaper. Today at Berkeley Lab. BIO 2004 Includes Several from Lab. http://www.lbl.gov/today/ June 3, 2004.
1257. **Hazen, T. C.** Invited. Latest Advances in Environmental Biotechnology. June 2004, San Francisco, CA. BIO2004.
1258. **Hazen, T. C.** Invited. Integration of Ecogenomics, Phenomics, Transcriptomics, Proteomics, Lipidomics, Metabolomics, Fluxomics, Bioinformatics, and Biogeochemistry: The New Frontier for Environmental Biotechnology. June 2004, Adelaide, Australia. Flinders University.
1259. Martinez*, R. E., C. Rios-Velazquez, G. L. Andersen, and **T. C. Hazen**. Contributed. Molecular Analysis of the Microbial Community Structure in Chromium Contaminated Sites before and after In Situ Bioreduction Stimulation by Lactate Injection. May 2004, New Orleans, LA. American Society for Microbiology Annual Meeting. (LBNL-54286 Abs.)
1260. Malave*, J., S. E. Borglin, C. Rios-Velazquez, and **T. C. Hazen**. Contributed. Study of Microbial Community Structure Using Phospholipid Fatty Acid Analysis (PLFA) at a Chromium Contaminated Site. May 2004, New Orleans, LA. American Society for Microbiology Annual Meeting. (LBNL-54287 Abs.)
1261. He*, Z., Q. He, L. Wu, J. D. Wall, **T. C. Hazen**, M. W. Fields, and J. Zhou. Contributed. Transcriptional Analysis of Responses of *Desulfovibrio vulgaris* to NaCl Stress Using Whole-Genome Oligonucleotide Microarrays. May 2004, New Orleans, LA. American Society for Microbiology Annual Meeting. (LBNL-54284 Abs.)
1262. He*, Q., Z. He, L. Wu, J. D. Wall, **T. C. Hazen**, M. W. Fields, and J. Zhou. Contributed. Global Transcriptional Analysis of *Desulfovibrio vulgaris* in Response to Nitrite Stress Using Whole-Genome Oligonucleotide Microarrays. May 2004, New Orleans, LA. American Society for Microbiology Annual Meeting. (LBNL-54285 Abs.)
1263. Holman*, H.-Y., Z. Lin, **T. C. Hazen**, and D. C. Joyner. Contributed. A real-time investigation of *Desulfovibrio vulgaris* response to oxygen stress. May 2004, New Orleans, LA. American Society for Microbiology Annual Meeting. (LBNL-54289 Abs.)
1264. Brodie*, E., **T. C. Hazen**, J. M. Wan, T. K. Tokunaga, J. Larsen, K. Olson, D. C. Joyner, and M. Firestone. Contributed. Biogeography of microbial communities associated with diffusion limited reduction of U(VI) and NO_3- as co-contaminants in natural sediments and soils. May 2004, New Orleans, LA. American Society for Microbiology Annual Meeting. (LBNL-54232 Abs.)
1265. Joyner*, D. C., S. E. Borglin, R. Huang, **T. C. Hazen**, J. D. Wall, H.-C. Yen, and S. M. Stolyar. Contributed. Chemically defined medium for *Desulfovibrio vulgaris* stress studies and biomass production. May 2004, New Orleans, LA. American Society for Microbiology Annual Meeting. (LBNL-54288 Abs.)
1266. Borglin*, S. E., **T. C. Hazen**, D. C. Joyner, and R. Huang. Contributed. Effects of Environmental stressors on Signature Lipid Biomarkers in *Desulfovibrio vulgaris*. May 2004, New Orleans, LA. American Society for Microbiology Annual Meeting. (LBNL-54235 Abs.)
1267. **Hazen, T. C.**, D. Joyner, S. Borglin, B. Faybishenko, J. Wan, T. Tokunaga, S. Hubbard, K. Williams, M. Conrad, C. Rios-Velazquez, J. Malave-Orengo, R. Martinez-Santiago, M. Firestone, E. Brodie, P. E. Long, E. Willett, and S. Koenigsberg. Contributed. Functional Microbial Changes during Lactate and HRC-Stimulated Bioreduction of Cr(VI) in Hanford 100H Sediments. May 2004, New Orleans, LA. American Society for Microbiology Annual Meeting. (LBNL-54237 Abs.)
1268. **Hazen, T. C.**, D. Joyner, S. Borglin, B. Faybishenko, M. Conrad, C. Rios-Velazquez, J. Malave-Orengo, R. Martinez-Santiago, M. Firestone, E. Brodie, P. E. Long, E. Willett, and S. Koenigsberg. Contributed. Functional Microbial Changes during Lactate and HRC-Stimulated Bioreduction of Cr(VI) in Hanford 100H Sediments. May 2004, Monterey, CA. International Conference on Chlorinated and Recalcitrant Compound Remediation.
1269. **Hazen, T. C.**, D. Joyner, S. Borglin, B. Faybishenko, J. Wan, T. Tokunaga, S. Hubbard, K. Williams, M. Firestone, E. Brodie, P. E. Long, E. Willett, and S. Koenigsberg. Contributed. Field Investigations of HRC®-Stimulated

Bioreduction of Cr(VI) at Hanford 100H. May 2004, Monterey, CA. International Conference on Chlorinated and Recalcitrant Compound Remediation.

1270. Faybishenko*, B., **T. C. Hazen**, S. Hubbard, M. Conrad, and J. Christensen. Invited. Strategy and Techniques for Monitoring Bioremediation of Metals in the Vadose Zone and Groundwater at Contaminated Sites. April 2004, Reston, VA. Workshop Long-Term Performance Monitoring of Metals and Radionuclides in the Subsurface: Strategies, Tools and Case Studies (DOE/USGS)
1271. **Hazen, T. C.** Invited. From Sequence to Integration of Genomics, Proteomics, Metabolomics, Bioinformatics and Ecology: The New Frontier of Science. April 2004, San Juan, PR. University of Puerto Rico.
1272. **Hazen, T. C.** Invited. Virtual Institute for Microbial Stress and Survival: Rapid Deduction of Stress Response Pathways. April 2004, Bayamon, PR. University of Puerto Rico.
1273. **Hazen, T. C.** Invited. VIMSS: Rapid Deduction of Stress Response Pathways in Metal and Radionuclide Reducing Bacteria. March 2004, Warrenton, VA. NABIR Program Annual PI Meeting.
1274. **Hazen, T. C.**, D. Joyner, S. Borglin, B. Faybishenko, J. Wan, T. Tokunaga, S. Hubbard, K. Williams, M. Conrad, C. Rios-Velazquez, J. Malave-Orengo, R. Martinez-Santiago, M. Firestone, E. Brodie, P. E. Long, E. Willett, and S. Koenigsberg. Invited. Field Investigations of HRC®-Stimulated Bioreduction of Cr(VI) at Hanford 100H. March 2004, Warrenton, VA. NABIR Program Annual PI Meeting.
1275. Wan*, J., T. K. Tokunaga, **T. C. Hazen**, M. K. Firestone, Z. Zhen, E. Brodie, J. Larsen, and D. Herman. Invited. Mesoscale Coupled Transport and Biogeochemical Effects on Reduction of U(VI) and NO_3– as Co-contaminants in Natural Sediments and Soils. March 2004, Warrenton, VA. NABIR Program Annual PI Meeting.
1276. **Hazen, T. C.** Invited. An Overview of Environmental Biotechnology. March 2004, San Diego, CA. AEHS West Annual Symposium on Contaminated Soils.
1277. **Hazen, T. C.** Newspaper article. Bacterias se tomaron encuentro de juices. March 2004, Concepcion, Chile. El Sur March 4, 2004 page 5.
1278. **Hazen, T. C.** Invited Panelist. Round Table on Future of Biotechnologies. March 2004, Concepcion, Chile. Global Biotechnology Forum, United Nations Industrial Development Organization.
1279. **Hazen, T. C.** Invited. A Scientific Briefing on Bioremediation. March 2004, Concepcion, Chile. March 2004, Concepcion, Chile. Global Biotechnology Forum, United Nations Industrial Development Organization.
1280. **Hazen, T. C.** Invited. A Scientific Briefing on Bioremediation. March 2004, Concepcion, Chile. Global Biotechnology Forum, United Nations Industrial Development Organization.
1281. **Hazen, T. C.** Invited. Biotechnology to Restore Fouled Environments. How may natural and genetically engineered organisms be used? March 2004, Concepcion, Chile. Global Biotechnology Forum, United Nations Industrial Development Organization.
1282. **Hazen, T. C.** Invited Panelist. Plenary Case Scenario and Discussion. *Chile Pork Growers v. Alpha Food Laboratories** - a biotechnology liability case. March 2004, Concepcion, Chile. Global Biotechnology Forum, United Nations Industrial Development Organization.
1283. **Hazen, T. C.** Invited Panelist. Plenary Case Scenario and Discussion. *People v Soderstein*, a food bioterrorism case. Global Biotechnology Forum, United Nations Industrial Development Organization.
1284. **Hazen, T. C.** Invited. Genes and Bacteria. Why are bacteria important and what do they do? As life forms, how are they structured? March 2004, Concepcion, Chile. Global Biotechnology Forum, United Nations Industrial Development Organization.
1285. **Hazen, T. C.**, H.-Y. Holman, S. E. Borglin, D. Joyner, R. Huang, Z. Lin, D. Stahl, S. M. Stolyar, M. Fields, D. Thompson, J. Zhou, J. D. Wall, H.-C. Yen, M. Keller5. Invited. VIMSS Applied Environmental Microbiology Core Research on Stress Response Pathways in Metal-Reducers. February 2004, Arlington, VA. DOE Genomes to Life Workshop.
1286. **Hazen, T. C.** Invited. An Overview of Environmental Biotechnology. October 2003, Amherst, MA. AEHS Annual Symposium on Contaminated Soils.
1287. **Hazen, T. C.** Invited. Bioremediation: using biotechnology to cleanup toxic waste sites. October 2003, St. Louis, MO. Genetics and the International Court.
1288. **Hazen, T. C.** Invited Keynote. Bioremediation and Natural Attenuation: Stewardship through Science. October 2003, Salt Lake City, UT. INRA Subsurface Science Conference.
1289. **Hazen, T. C.** Invited. Bioremediation Overview. July 2003, Berkeley, CA. CEB Summer Student Lectures.
1290. **Hazen, T. C.** Invited. Recent Advances in Environmental Biotechnology. June 2003, Washington, DC. BIO 2003 session on Environmental Biotechnology.
1291. Brodie, E. I., M. K. Firestone, J. Pena, J. Larsen, **T. C. Hazen***, T. Tokunaga, and J. Wan. Contributed. Bioreduction of Co-Contaminating Uranium and Nitrate: Carbon Release Rate Effects. June 2003, Orlando, FL. In Situ and On Site Bioremediation: The Sixth International Symposium.
1292. **Hazen, T. C.**, S. E. Borglin, and C. M. Oldenburg. Contributed. Aerobic Landfill Bioremediation. June 2003, Orlando, FL. In Situ and On Site Bioremediation: The Sixth International Symposium.

1293. **Hazen, T. C.** Invited. From Research to Practical Applications: Gaseous Nutrient Injection for in situ bioremediation of chlorinated solvents. May 2003, Washington, DC. American Society for Microbiology annual meeting.
1294. **Hazen, T. C.** Invited. Bioremediation: using biotechnology to cleanup toxic waste sites. May 2003, Washington, DC. Genetics and the Court.
1295. **Hazen, T. C.** Magazine Article Interview. Natural solutions to pollution by A. J. S. Rayl. April 7, 2003 The Scientist 17:22-25.
1296. **Hazen, T. C.**, B. Faybishenko, J. Wan, T. Tokunaga, S. Hubbard, M. Firestone, P. E. Long, S. Koenigsberg. Invited. NABIR-EM Field Investigations of Lactate-Stimulated Bioreduction of Cr(VI) to Cr(III) at Hanford 100H. March 2003, Warrenton, VA. NABIR Program Annual PI Meeting.
1297. Wan*, J., T. K. Tokunaga, **T. C. Hazen**, M. K. Firestone, E. Brodie, Z. Zheng, J. Larsen, and J. Pena. Invited. Mesoscale Coupled Transport and Biogeochemical Effects on Reduction of U(VI) and NO3– as Co-contaminants in Natural Sediments and Soils. March 2003, Warrenton, VA. NABIR Program Annual PI Meeting.
1298. Letain*, T., C. Gillaspie, M. Doublas, S. B. Clark, **T. C. Hazen**, and H. Nitsche. Invited. The Role of Biogeochemical Dynamics in the Alteration of U Solid Phases under Oxic Conditions. March 2003, Warrenton, VA. NABIR Program Annual PI Meeting.
1299. **Hazen, T. C.** Invited. Marine Pollution. March 2003, Vacaville, CA. Under Pressure Dive Club.
1300. Padilla*, E., and **T. C. Hazen**. Contributed. Molecular analysis of the Microbial Community Structure in Aerobic and Anaerobic Landfill Bioreactors. March 2003, Rio Piedras, PR. ACS Junior Technical Meeting PRISM
1301. **Hazen, T. C.**, H-Y. Holman, D. Stahl, M. Fields, D. Thompson, J. Zhou, J. Wall, and M. Keller. Invited. The Virtual Institute of Microbial Stress and Survival: Rapid Deduction of Stress Response Pathways in Metal/Radionuclide Reducing Bacteria: Applied Environmental Microbiology Core. February 2003, Arlington, VA. DOE Genomes to Life Workshop.
1302. Arkin*, A., **T. C. Hazen**, J. Keasling, A. Singh, F. Olkin, I. Dubchak, H-Y. Holman, D. Stahl, M. Fields, D. Thompson, J. Zhou, J. Wall, and M. Keller. Invited. The Virtual Institute of Microbial Stress and Survival: Rapid Deduction of Stress Response Pathways in Metal/Radionuclide Reducing Bacteria: Overview. February 2003, Arlington, VA. DOE Genomes to Life Workshop.
1303. Brodie*, E. L., M. K. Firestone, J. Pena, J. Larsen, Z. Zheng, **T. C. Hazen**, T. K. Tokunaga, and J. Wan. Bioreduction of Co-Contaminating Uranium and Nitrate: Effects of Carbon Release Rate. December 2002, San Francisco, CA. American Geophysical Union Annual Meeting.
1304. Borglin*, S. E., **T. C. Hazen**, and C. M. Oldenburg. Contributed. Comparison of Leachate Quality from Aerobic and Anaerobic Municipal Solid Waste Bioreactors. December 2002, San Francisco, CA. American Geophysical Union Annual Meeting.
1305. Oldenburg*, C. M., S. E. Borglin, and **T. C. Hazen**. Contributed. Simulations of Flow, Transport, and Biodegradation in Landfills. December 2002, San Francisco, CA. American Geophysical Union Annual Meeting.
1306. **Hazen, T. C.** Invited. Bioremediation: the hope and the hype. November 2002, Irvine, CA. ENTEC West ’02.
1307. **Hazen, T. C.**, and W. Stringfellow. Invited. Critical Parameters for MNA of Chlorinated Solvents. November 2002, Oakland, CA. DOE annual Technology Information Exchange.
1308. **Hazen, T. C.** Invited. Bioremediation: using biotechnology to cleanup toxic waste sites. November 2002, Squaw Valley, CA. Genetics and the Court.
1309. **Hazen, T. C.** Invited. Microbial Ecology of Diffusion Limited Environments: Scale Implications for Biogeochemistry and Bioremediation. November 2002, Atlanta, GA. Georgia Institute of Technology, School of Biology.
1310. **Hazen, T. C.** Invited. Bioremediation field applications. October 2002, INTERNET. First Annual EICE On-Line Conference on Environmental Biotechnology.
1311. Borglin*, S. E., C. M. Oldenburg, and **T. C. Hazen**. Invited. Smart Storage: Stabilization of Stored and Landfilled Waste using Aerobic and Anaerobic Biotreatment Technology. October 2002, Washington, DC. SERDP Partners Symposium.
1312. Borglin*, S. E., **T. C. Hazen**, C. M. Oldenburg, and P. Zawislanski. Contributed. Biotreatment of Municipal Solid Waste in Aerobic and Anaerobic Laboratory Bioreactors. October 2002, Asheville, NC. Second International Landfill Research Symposium.
1313. **Hazen, T. C.** Invited. In Situ Bioremediation: From Research to Practical Applications. October 2002, Boise, ID. 2002 Subsurface Science Symposium. Inland Northwest Research Alliance, Inc.
1314. **Hazen, T. C.** Newspaper Article. New Defenders by Lisa Davis (Interview). September 11-17 2002, San Francisco, CA. SF Weekly 18-19, 22-23, 27, vol 21, no. 32.
1315. **Hazen, T. C.**, T. K. Tokunaga, J. Wan, E. Schwartz, M. K. Firestone, S. R. Sutton, M. Newville, K. R. Olson, A. Lanzirotti, and W. Rao. Contributed. Intra-aggregate biogeochemical dynamics of chromium contamination and in-situ bioremediation. September 2002, Oak Ridge, TN. NABIR FRC Workshop.
1316. **Hazen, T. C.** Invited Convener. Direct characterization of microorganisms on mineral surfaces. September 2002, Copenhagen, Denmark. International Symposium on Subsurface Microbiology.

1317. Letain, T., C. Gillaspie, M. Douglas, S. B. Clark, **T. C. Hazen***, and H. Nitsche. Invited. The Role of Biogeochemical Dynamics in the Alteration o U Solid Phases under Oxic Conditions. September 2002, Copenhagen, Denmark. International Symposium on Subsurface Microbiology.
1318. **Hazen, T. C.**, T. K. Tokunaga, J. Wan, E. Schwartz, M. K. Firestone, S. R. Sutton, M. Newville, K. R. Olson, A. Lanzirotti, and W. Rao. Contributed. Intra-aggregate biogeochemical dynamics of chromium contamination and in-situ bioremediation. September 2002, Copenhagen, Denmark. International Symposium on Subsurface Microbiology.
1319. **Hazen, T. C.** Invited. Ecology of Pathogens in the Environment "Why do good bugs go bad?". August 2002, Berkeley, CA. LBNL Center for Environmental Biotechnology Summer Student Seminar Series.
1320. **Hazen, T. C.** Newspaper Article. Grant Money to Help Berkeley Scientists Study Environment-Cleaning Bacteria by Tyler Hillman (Interview). July 26 2002, Berkeley, CA. The Daily Californian.
1321. **Hazen, T. C.** Newspaper Article. Summer Internships Benefit Students and Researchers Alike by Pam Reynolds (Interview). July 26 2002, Berkeley, CA. Berkeley Lab Currents.
1322. **Hazen, T. C.** Newspaper Article. Lab Scores Big in DOE Genomes to Life Awards by Lynn Yarris (Interview). July 26 2002, Berkeley, CA. Berkeley Lab Currents.
1323. **Hazen, T. C.** Newspaper Article. Bay Area scientists get big funding for microbe research by Ian Hoffman (Interview). July 24 2002, Oakland, CA. The Oakland Tribune.
1324. **Hazen, T. C.** Invited. Bioremediation: the hope and the hype. July 2002, Berkeley, CA. LBNL Center for Biotechnology Summer Student Seminar Series.
1325. Arkin, A., and **T. C. Hazen**. Invited. Genomes to Life Proposal on Virtual Institute for Microbial Stress and Survival. June 2002, Berkeley, CA. LBNL DOE Office of Science On-Site Review.
1326. **Hazen, T. C.**, T. K. Tokunaga, J. Wan, E. Schwartz, M. K. Firestone, S. R. Sutton, M. Newville, K. R. Olson, A. Lanzirotti, and W. Rao. Contributed. Intra-aggregate biogeochemical dynamics of chromium contamination and in-situ bioremediation. June 2002, Monterey, CA. Bioremediation and Biodegradation: Current Advances in Reducing Toxicity, Exposure and Environmental Consequences. EPA/NIH Superfund Basic Research Program.
1327. **Hazen, T. C.**, and T. Torok. Invited. "What do we do first?!!!" Detecting Biothreat Agents, The Latest Protocols and Procedures. June 2002, Berkeley, CA. Berkeley Fire Department.
1328. **Hazen, T. C.**, R. Knopp, T. Letain*, H. Nitsche, R. Silva, and W. Stringfellow. Contributed. Defining the Interactions between Microbial Cell Surfaces and Uranium (VI) In Aerobic Conditions. May 2002, Washington, DC. Annual Meeting of the American Society for Microbiology.
1329. **Hazen, T. C.** Invited. Bioremediation of a Polish Oil Refinery sludge Lagoon. May 2002, Berkeley, CA. Glen T. Seaborg Center Seminar. Chemical Sciences Division, LBNL.
1330. **Hazen, T. C.**, and E. Majer. Invited. Communicating with Program Managers. May 2002, Berkeley, CA. Earth Sciences Division Workshop, LBNL.
1331. **Hazen, T. C.**, and T. Torok. Invited. "What do we do first?!!!" Detecting Biothreat Agents, The Latest Protocols and Procedures. May 2002, Napa, CA. California Conference of Local Health Officers, Health Officers Association of California, California Department of Health Services.
1332. **Hazen, T. C.** Invited. Ecology of Pathogens in the Environment "Why do good bugs go bad?". April 2002, Davis, CA. University of California at Davis, Annual Open House, Division of Biological Sciences.
1333. **Hazen, T. C.** Invited. Ecology of Pathogens in the Environment "Why do good bugs go bad?". April 2002, Washington, DC. LBNL DC Office Seminar Series.
1334. Letain, T., C. Gillaspie, M. Douglas, S. B. Clark, **T. C. Hazen**, and H. Nitsche. Invited. The Role of Biogeochemical Dynamics in the Alteration o U Solid Phases under Oxic Conditions. March 2002, Warrenton, VA. NABIR Program Annual PI Meeting.
1335. Wan, J., T. K. Tokunaga, **T. C. Hazen**, M. K. Firestone, E. Schwartz, K. R. Olson, S. R. Sutton, M. Newville, A. Lanzirotti, and W. Rao. Invited. Bridging the Batch-Field Gap: Chromium Biogeochemistry in Diffusion–Limited Domains. March 2002, Warrenton, VA. NABIR Program Annual PI Meeting.
1336. **Hazen, T. C.**, R. Charbonneau, and B. B. Looney. Invited. Benzene and Toluene contamination from new wells at Pantex. April 2002, Amarillo, TX. Newspapers and Television in Amarillo and Public Meeting.
1337. Arkin, A., and **T. C. Hazen**. Invited. LBNL Genomes to Life Proposal. March 2002, Germantown, MD. DOE Office of Biological and Environmental Research Program Managers.
1338. Oldenburg*, C. M., S. E. Borglin, **T. C. Hazen**, P. T. Zawislanski. Invited. Process Modeling of Flow, Transport, and Biodegradation in Landfill Bioreactors. February 2002, Berkeley, CA. Earth Sciences Division, LBNL Directors Review.
1339. Faybishenko*, B., and **T. C. Hazen**. Contributed. Fuzzy systems modeling of in situ bioremediation of chlorinated solvents. December 2001, San Francisco, CA. American Geophysical Union Annual Meeting.

1340. Letain*, T. E., R. J. Silva, H. Nitsche, **T. C. Hazen**, S. B. Clark, M. Douglas, C. Billaspie, R. Knopp, and P. J. Panak. Contributed. The role of biogeochemical dynamics in the alteration of Uranium solid phases under oxic conditions. December 2001, San Francisco, CA. American Geophysical Union Annual Meeting.
1341. Oldenburg*, C. M., S. E. Borglin, **T. C. Hazen**, P. T. Zawislanski. Contributed. Process Modeling of Flow, Transport, and Biodegradation in Landfill Bioreactors. December 2001, San Francisco, CA. American Geophysical Union Annual Meeting.
1342. Greenberg*, M. R., **T. C. Hazen**, S. E. Borglin, and C. M. Oldenburg. Contributed. Factors controlling metals concentration in aerobic and anaerobic laboratory landfill bioreactors. December 2001, San Francisco, CA. American Geophysical Union Annual Meeting.
1343. **Hazen, T. C.** Invited. In situ respiration and direct enzymatic assays for assessing bioremediation. December 2001, San Francisco, CA. American Geophysical Union Annual Meeting.
1344. Borglin*, S.E., **T. C. Hazen**, C. M. Oldenburg, and P. T. Zawislanski. Contributed. Mesoscale Laboratory Models of the Aerobic Biodegradation of Municipal Landfill Materials. December 2001, San Francisco, CA. American Geophysical Union Annual Meeting.
1345. Tokunaga*, T. K., J. Wan, **T. C. Hazen**, M. K. Firestone, E. Schwartz, K. R. Olson, S. R. Sutton, M. Newville, A. Lanzirotti, and W. Rao. Contributed. Intra-aggregate biogeochemical dynamics of chromium contamination and in-situ remediation. December 2001, San Francisco, CA. American Geophysical Union Annual Meeting.
1346. **Hazen, T. C.** Invited. Deep Subsurface Microbiology and the Homestake Gold Mine. December 2001, Lead, SD. National Underground Science Laboratory Microbiology Conference.
1347. **Hazen, T. C.**, and T. Torok. Invited. The Ecology of *Bacillus anthracis*. November 2001, Berkeley, CA. University of California EH&S Directors Meeting.
1348. **Hazen, T. C.**, and T. Torok. Invited. The Ecology of *Bacillus anthracis*. November 2001, Berkeley, CA. Lawrence Berkeley National Laboratory.
1349. **Hazen, T. C.** Invited. The Ecology of Pathogens in the Environment. November 2001, Berkeley, CA. Lawrence Berkeley National Laboratory.
1350. **Hazen, T. C.** Invited. In situ Bioremediation of Solvent Contaminated Sites using Gaseous Nutrient Injection. November 2001, Oakland, CA. California Regional Water Quality Board.
1351. **Hazen, T. C.**, and T. Torok. Invited. The Ecology of *Bacillus anthracis*. November 2001, Berkeley, CA. Lawrence Berkeley National Laboratory Safety Update.
1352. **Hazen, T. C.** Invited. In Situ Bioremediation: Lab to Field. October 2001, Sacramento, CA. 23rd Biennial Groundwater Conference and 10th Annual Groundwater Resources Association Meeting.
1353. **Hazen, T. C.** Invited. DOE EM Restoration Needs and Direction. October 2001, Washington, DC. DOE NABIR Biological and Environmental Research Advisory Committee Review.
1354. **Hazen, T. C.** Invited. Deep Subsurface Microbiology and the Homestake Gold Mine. October 2001, Lead, SD. National Underground Science Laboratory Conference.
1355. **Hazen, T. C.** Invited. Aerated landfills, changing the "dry tomb" paradigm. September 2001, Belgrade, Yugoslavia. First International Conference on Environmental Recovery of Yugoslavia.
1356. **Hazen, T. C.**, A. J. Tien, A. Worsztynowicz, D. J. Altman, K. Ulfig, G. Plaza, and T. Manko. Invited. Poland petroleum refinery sludge lagoon cleanup using a biopile. September 2001, Belgrade, Yugoslavia. First International Conference on Environmental Recovery of Yugoslavia.
1357. **Hazen, T. C.** Invited. Bioremediation: the hope and the hype. September 2001, Belgrade, Yugoslavia. First International Conference on Environmental Recovery of Yugoslavia.
1358. Tokunaga*, T., J. Wan, **T. C. Hazen**, K. Olson, M. Firestone, E. Schwartz, S. Sutton, M. Newville, and A. Lanzirotti. Contributed Paper. Diffusion-limited chromium reduction in soil aggregates. August 2001, Chicago, IL. ACS National Meeting.
1359. Schwartz*, E., T. Tokunaga, J. Wan, T. Hazen, and M. Firestone. Contributed. Microbial Communities and Hexavalent Chromium Transport in Soil. August 2001, Amsterdam, Netherlands. 9th International Symposium on Microbial Ecology.
1360. **Hazen, T. C.** Invited Workshop. Tropical Water Quality: Survival of Pathogens and their Indicators. Water Quality Issues Workshop. July 2001, Berkeley, CA. LBNL Special Workshop.
1361. Ulfig, K., G. Plaza*, A. J. Tien, A. Worsztynowicz, M. A. Heitkamp, and **T. C. Hazen**. Contributed. Microbial Aspects of Bioremediation. June 2001, Orlando, FL. 2001 International Containment & Remediation Technology Conference and Exhibition.
1362. DeAngelis*, K., E. Schwartz, M. Firestone, J. Wan, T. Tokunaga, D. Joyner, and **T. C. Hazen**. Microbial community composition and chromium transport in a clay sediment. June 2001, Berkeley, CA. UC Berkeley, 2nd Ann. Microbiology Symposium.
1363. **Hazen, T. C.** Contributed. Aerated Landfills, Changing the Subtitle D "Dry Tomb" Paradigm. June 2001, Orlando, FL. 2001 International Containment & Remediation Technology Conference and Exhibition.

1364. **Hazen, T. C.** Invited. Bioremediation: The Hope and the Hype. June 2001, Orlando, FL. 2001 International Containment & Remediation Technology Conference and Exhibition.
1365. Faybishenko*, B., and **T. C. Hazen**. Contributed. Fuzzy Systems Modeling of In Situ Bioremediation of Chlorinated Solvents. June 2001, Orlando, FL. 2001 International Containment & Remediation Technology Conference and Exhibition.
1366. Chauhan*, S., L. Méndez, J. Montalvo, and **T. C. Hazen**. Contributed. Gaseous In situ bioremediation of benzo(a)pyrene in soil. June 2001, San Diego, CA. In Situ and On Site Bioremediation: The Sixth International Symposium.
1367. Borglin*, S., **T. C. Hazen**, C. Oldenburg, and P. Zawislanski. Contributed. Laboratory Investigation of the Biodegradation of Municipal Landfill Materials. June 2001, San Diego, CA. In Situ and On Site Bioremediation: The Sixth International Symposium.
1368. **Hazen, T. C.**, A. J. Tien, A. Worsztynowicz, D. J. Altman, K. Ulfig, G. Plaza, and T. Manko. Contributed. Poland Petroleum Refinery Sludge Lagoon biopile Demonstration Project. June 2001, San Diego, CA. In Situ and On Site Bioremediation: The Sixth International Symposium.
1369. **Hazen, T. C.** Invited Seminar. Aerobic Bioremediation of Landfills: Changing the 'Dry Tomb' Paradigm. May 2001, Ocean Springs, MS. Gulf Coast Research Laboratory, University of Southern Mississippi.
1370. **Hazen, T. C.** Invited Seminar. In situ Bioremediation of Solvent Contaminated Sites using Gaseous Nutrient Injection. April 2001, Seattle, WA. Department of Civil and Environmental Engineering, University of Washington.
1371. **Hazen, T. C.** Invited Seminar. Technical Baseline Reassessments. April 2001, Oakland, CA. Oakland Site Technology Coordination Group.
1372. Tokunaga*, T., J. Wan, **T. C. Hazen**, K. Olson, M. Firestone, E. Schwartz, S. Sutton, M. Newville, and A. Lanzirotti. Contributed Paper. Mesoscale Biotransformation Dynamics Controlling Reactive Transport of Chromium. March 2001, Reston, VA. NABIR Annual Investigators Meeting.
1373. Nitsche, H., S. B. Clark*, and **T. C. Hazen**. Contributed Paper. The role of biogeochemical dynamics in the alteration of U solid phases under oxic conditions. March 2001, Reston, VA. NABIR Annual Investigators Meeting.
1374. **Hazen, T. C.** Invited Workshop. The survival of indicators and pathogens in tropical waters. March 2001, Honolulu, HI. EPA workshop on Tropical Indicators.
1375. **Hazen, T. C.** Invited Seminar. Aerobic Bioremediation of Landfills: Changing the 'Dry Tomb' Paradigm. March 2001, Honolulu, HI. University of Hawaii, Water Resources Center.
1376. **Hazen, T. C.** Invited Seminar. In situ bioremediation of solvents and organic contaminants using gaseous nutrient injection. January 2001, Livermore, CA. Lawrence Livermore National Laboratory.
1377. **Hazen, T. C.** Invited Seminar. Landfill Aerobic Bioremediation/ Gaseous Nutrient Injection for In Situ Bioremediation of Fuels and Chlorinated Solvents. December 2000, San Francisco, CA. Land Transfer and Long Term Management of Contaminated Federal Facilities.
1378. **Hazen, T. C.** Invited Seminar. Poland Petroleum Refinery Sludge Lagoon biopile Demonstration Project. December 2000, San Francisco, CA. Land Transfer and Long Term Management of Contaminated Federal Facilities.
1379. **Hazen, T. C.** Invited Seminar. Bioremediation: the hope and the hype. December 2000, Livermore, CA. Lawrence Livermore National Laboratory.
1380. **Hazen, T. C.** Invited Seminar. Aerobic Bioremediation of Landfills: Changing the 'Dry Tomb' Paradigm. December 2000, Boston, MA. Department of Civil and Environmental Engineering. Massachusetts Institute of Technology.
1381. **Hazen, T. C.** Invited Seminar. Bioremediation: the hope and the hype. November 2000, Augusta, GA. 6th Annual DOE Technology Information Exchange.
1382. Montañez, J., L. Méndez, S. Chauhan, and **T. C. Hazen**. Contributed. Polynuclear aromatic hydrocarbons in situ bioremediation treatability test; focus on contaminant disappearance by HPLC analysis. November 2000, Los Angeles, CA. Annual meeting American Institute of Chemical Engineers.
1383. **Hazen, T. C.** Invited Seminar. Aerobic Bioremediation of Landfills: Changing the 'Dry Tomb' Paradigm. October 2000, Davis, CA. Environmental and Water Resources Engineering Series, University of California at Davis.
1384. **Hazen, T. C.** Contributed. Full-scale Biopile Remediation of PAH's at a Polish Oil Refinery Sludge Lagoon. November 2000, Albuquerque, NM. International Petroleum Conference.
1385. **Hazen, T. C.** Invited Seminar. Aerobic Landfills: Changing the Subtitle D 'Dry Tomb' Paradigm. October 2000, Albuquerque, NM. New Mexico Environmental Health Conference.
1386. **Hazen, T. C.** Invited Seminar. Ecology of Caribbean Coral Reefs. October 2000, Vacaville, CA. Vacaville SCUBA Club.
1387. **Hazen, T. C.** Invited Seminar. In situ Bioremediation of Solvent Contaminated Sites using Gaseous Nutrient Injection. October 2000, Los Angeles, CA. Department of Biology, Chico State University.
1388. **Hazen, T. C.** Invited Seminar. Bioremediation: the hope and the hype. September 2000, Lake Arrowhead, CA. 8th International Conference on Small Genomes.

1389. **Hazen, T. C.** Invited Key Speaker. Bioremediation and GMO. September 2000, Chapel Hill, NC. The Southeast Regional Judicial Conference on Genetics in the Courtroom. NC Supreme Court Workshop.
1390. Worsztynowicz, A., D. Rzychon, M. Adamski, K. Zacharz, S. Iwaszenko, K. Ulfig, G. Plaza, T. Manko, J. Krajewska, K. Lukasik, A. Tien, D. Altman, T. Hazen, B. Jagosz, J. Mos. Invited Presentation. Bioremediation of Soil Contaminated with Petroleum Wastes using a Biopile Technique – A Case Study. September 2000, Prague, Czech Republic. Prague 2000, Fifth International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe, Environmental Issues in Central and Eastern Europe.
1391. **Hazen, T. C.** Invited Presentation. Aerobic Landfill Bioreactors. September 2000, Prague, Czech Republic. Prague 2000, Fifth International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe, Environmental Issues in Central and Eastern Europe.
1392. Ulfig, K., G. Plaza, A. Tien, D. Altman, and **T. C. Hazen**. Invited Seminar. Microbial Overview of Biopile Demonstration. September 2000, Prague, Czech Republic. Prague 2000, Fifth International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe, Environmental Issues in Central and Eastern Europe.
1393. **Hazen, T. C.** Invited Seminar. Bioremediation: State of the Science. September 2000, Prague, Czech Republic. Prague 2000, Fifth International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe, Environmental Issues in Central and Eastern Europe.
1394. **Hazen, T. C.** Invited Workshop. Bioremediation research collaborative research for the EPSCOR Program. August 2000, Berkeley, CA. DOE EPSCOR annual workshop.
1395. **Hazen, T. C.** Invited Workshop. Bioremediation research sponsored by DOE. August 2000, Berkeley, CA. DOE EPSCOR annual workshop.
1396. **Hazen, T. C.** Invited Seminar. Aerated Landfills. July 2000, San Diego, CA. Annual Meeting of the Society for Industrial Microbiology.
1397. **Hazen, T. C.** Invited Seminar. Intimate Strangers: Creators of the Future – Q&A. July 2000, Berkeley, CA. LBNL Summer Student Program.
1398. **Hazen, T. C.** Invited Workshop. Bioremediation Studies of UXO. June 2000, Berkeley, CA. BEST Program Workshop on Bioremediation.
1399. **Hazen, T. C.** Invited Key Speaker. Application of Biopiles. June 2000, Prague, Czech Republic. NATO Advanced Research Workshop "The Utilization of Bioremediation to Reduce Soil Contamination: Problems and Solutions"
1400. **Hazen, T. C.** Invited Seminar. Bioremediation and DNAPLs. May 2000, Monterey, CA. International Conference on Chlorinated and Recalcitrant Compound Remediation.
1401. Tien, A. J., A. Worsztynowicz, D. J. Altman, **T. C. Hazen**, K. Ulfig, G. Plaza, and T. Manko. Contributed. Poland Petroleum Refinery Sludge Lagoon Biopile Demonstration Project. May 2000, Los Angeles, CA. American Society for Microbiology Annual Meeting.
1402. Clark, M. B, **T. C. Hazen**, R. A. Rodriguez-Martinez, and T. Torok. Contributed. Microbial community studies of differently treated explosive contaminated soils. May 2000, Los Angeles, CA. American Society for Microbiology Annual Meeting.
1403. **Hazen, T. C.** Invited Symposium. Bioremediation at LBNL. May 2000, Berkeley, CA. LBNL Open House.
1404. Rivera, C., and **T. C. Hazen**. Contributed. Chemotaxis of *Pseudomonas fluorescens* to 2,4 and 2,6-dinitrotoluene. March 2000, San Francisco, CA. American Chemical Society Spring Meeting.
1405. **Hazen, T. C.** Invited Seminar. Bioremediation using GMO. March 2000, Berkeley, CA. UC Berkeley and Biotechnology: Developing Strategic Partnerships, School of Public Health, University of California at Berkeley.
1406. **Hazen, T. C.** Invited Seminar. Full-scale Biopile Remediation of PAH's at a Polish Oil Refinery Sludge Lagoon. February 2000, Berkeley, CA. Department of Civil and Environmental Engineering, University of California at Berkeley.
1407. Palumbo, A., S. Pfiffner, **T. C. Hazen**, and T. Phelps. Invited Workshop. Scaling Lab to the Field. February 2000, Reston, VA. NABIR annual investigators meeting.
1408. **Hazen, T. C.** Invited Workshop. Scaling Lab to the Field. February 2000, Reston, VA. NABIR annual investigators meeting.
1409. Wan, J., T. Tokunaga, D. Joyner, **T. C. Hazen**, M. Firestone, E. Schwartz, S. Sutton, and M. Newville. Invited Symposium. Mesoscale biotransformation dynamics controlling reactive transport of chromium. February 2000, Reston, VA. NABIR annual investigators meeting.
1410. **Hazen, T. C.** Invited Seminar. Full-scale Biopile Remediation of PAH's at an Oil Refinery Sludge Lagoon. January 2000, El Paso, TX. University of Texas at El Paso.
1411. **Hazen, T. C.** Invited Workshop. Phytoremediation research at LBNL and DOE. November 1999, Jackson, MS. BEST Program Phytoremediation Workshop sponsored by Jackson State University.
1412. **Hazen, T. C.** Invited Seminar. Full-scale Biopile Remediation of PAH's in an Oil Refinery Sludge Lagoon. November 1999, Jackson, MS. Jackson State University.

1413. **Hazen, T. C.**, A. J. Tien, A. Worsztynowicz, K. Ulfig, and D. J. Altman. Invited Seminar. Bioremediation Field Demonstration of a Sludge Lagoon at a Polish Petroleum Refinery. November 1999, San Francisco, CA. Fourth USA/CIS Joint Conference on Environmental Hydrology and Hydrogeology.
1414. **Hazen, T. C.** Invited Seminar. Critical Biogeochemical Parameters for Bioremediation of Solvents in Fractured Rock. November 1999, San Francisco, CA. Fourth USA/CIS Joint Conference on Environmental Hydrology and Hydrogeology.
1415. **Hazen, T. C.** Invited Workshop. Chemical/Biological Subsurface Barriers. October 1999, Reston, VA. NABIR Workshop on Chemical/Biological Treatment.
1416. **Hazen, T. C.** Invited Seminar. Computer assisted presentations. October 1999, Berkeley, CA. LBNL Macintosh Users Group.
1417. **Hazen, T. C.** Invited Seminar. Field studies of aerobic bioremediation of groundwater contaminated by a Sanitary Landfill. August 1999, Vail, CO. International Symposium on Deep Subsurface Microbiology.
1418. **Hazen, T. C.** Invited Seminar. Critical Biogeochemical Parameters for Bioremediation of Solvents in Fractured Rock. August 1999, Vail, CO. International Symposium on Deep Subsurface Microbiology.
1419. **Hazen, T. C.** Newspaper Article. Lab Researchers Star on PBS by Paul Preuss (Interview). July 30 1999, Berkeley, CA. Berkeley Lab Currents.
1420. **Hazen, T. C.** Invited Presentation. Methane injection pilot study for bioremediation of Old Town solvent Plume. July 1999, Berkeley, CA. California Regional Water Quality Board.
1421. **Hazen, T. C.** Invited Seminar. Recent Innovations is Bioremediation. June 1999, Charleston, SC. ER-TEC'99 Environmental Restoration Technology End User Conference sponsored by DOE/DOD/EPA.
1422. **Hazen, T. C.**, J. Radway, J. Kastner, and M. Franck. Invited Seminar. Biosparging for rapid in situ cleanup of solvent contaminated soil and groundwater at the SRS D-area Oil Seepage Basin. June 1999, Charleston, SC. ER-TEC'99 Environmental Restoration Technology End User Conference sponsored by DOE/DOD/EPA.
1423. **Hazen, T. C.** Invited Seminar. Bioremediation of Contaminated Subsurface Environments. May 1999, Chicago, IL. American Society for Microbiology Annual Meeting.
1424. **Hazen, T. C.** Invited Seminar. U.S. Landfills: Changing the Subtitle D Paradigm, "Dry Tombs" to Bioreactors. April 1999, Berkeley, CA. Department of Environmental Engineering, University of California, Berkeley.
1425. Drinkwine, A. D., and **T. C. Hazen**. Contributed. Remediation of TCE Contaminated Ground Water Using Methane Injection to Enhance Cometabolism Demonstration Project at the Hastings Former Naval Ammunition Depot. April 1999, San Diego, CA. In Situ and On Site Bioremediation Symposium
1426. Brigmon, R. L., D. J. Altman, M. M. Franck, **T. C. Hazen**, and C. B. Fliermans. Contributed. Evaluation of Methanotrophic Bacteria during Injection of Gaseous Nutrients for In situ Trichloroethylene Bioremediation in a Sanitary Landfill. April 1999, San Diego, CA. In Situ and On Site Bioremediation Symposium
1427. Drinkwine, A. D., and **T. C. Hazen**. Invited Seminar. Remediation of TCE Contaminated Ground Water Using Methane Injection to Enhance Cometabolism Demonstration Project at the Hastings Former Naval Ammunition Depot. April 1999 "Gateway to the New Millennium" Conference.
1428. **Hazen, T. C.** Invited Seminar. U.S. Landfills: Changing the Subtitle D Paradigm, "Dry Tombs" to Bioreactors. March 1999, Berkeley, CA. Earth Sciences Division Colloquia, Lawrence Berkeley National Laboratory.
1429. **Hazen, T. C.** Invited Seminar. Innovative Bioremediation Demonstrations of Petroleum Contaminated Sites in Poland and US. March 1999, Berkeley, CA. Petroleum Environmental Research Forum hosted by Chevron.
1430. **Hazen, T. C.** Invited Seminar. U.S. Landfills: Changing the Subtitle D Paradigm, "Dry Tombs" to Bioreactors. March 1999, Rio Piedras, PR. University of Puerto Rico.
1431. **Hazen, T. C.** Invited Seminar. Bioremediation – State of the Science. March 1999, San Juan, PR. Universidad Metropolitano.
1432. **Hazen, T. C.** Invited Seminar. U.S. Landfills: Changing the Subtitle D Paradigm, "Dry Tombs" to Bioreactors. February 1999, Winston-Salem, NC. Biology Department 1999 Distinguished Alumni Lecture. Wake Forest University.
1433. **Hazen, T. C.** Invited Symposium. Critical Biogeochemical Parameters Used for In Situ Bioremediation of Solvents in Fractured Rock. February 1999, Berkeley, CA. Witherspoon Symposium: Dynamics of Fluids in Fractured Rocks.
1434. Wan, J., T. Tokunaga, **T. C. Hazen**, and M. Firestone. Invited Symposium. Mesoscale Biotransformation Dynamics as the Basis for Predicting Core Scale Reactive Transport of Chromium and Uranium. January 1999, Reston, VA. Annual DOE NABIR Investigators Meeting.
1435. **Hazen, T. C.** Invited Seminar. The NABIR FRC Web Page. January 1999, Reston, VA. Annual DOE NABIR Investigators Meeting.
1436. Tien, A. J., A. Worsztynowicz, K. Zacharz, D. J. Altman, and **T. C. Hazen**. Invited Seminar. Technology Development and Transfer for Environmental Remediation: Joint American and Polish Cooperation. January 1999, Seattle, WA. Sigma Xi annual meeting.

1437. **Hazen, T. C.** Invited Seminar. U.S. Landfills: Changing the Subtitle D Paradigm. October 1998, Stanford, CA. Stanford University, School of Engineering Seminar Series.
1438. **Hazen, T. C.** Invited Seminar. Methane biostimulation for cleanup of chlorinated solvents at the Naval Ammunition Depot. October 1998, Hastings, NE. Award presentation by the Nebraska Department of Environmental Quality to the Army Corps of Engineers.
1439. **Hazen, T. C.** Invited Workshop. Bioremediation of chlorinated solvents. October 1998, Hastings, NE. Workshop sponsored by the Army Corps of Engineers and the Nebraska Department of Environmental Quality.
1440. Worsztynowicz, A., A. Tien, K. Ulfig, K. Zacharz, M. Adamski, and D. Rzychon, and **T. C. Hazen**. Invited Symposium. Soil Cleaning at the Czechowice Refinery. September 1998, Warsaw, Poland. Fourth International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe (Warsaw'98).
1441. Ulfig, K., A. Tien, G. Plaza, A. Worsztynowicz, and **T. C. Hazen**. Invited Symposium. Microbiological changes in petroleum-contaminated soil during bioremediation at a Polish petroleum refinery. September 1998, Warsaw, Poland. Fourth International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe (Warsaw'98).
1442. **Hazen, T. C.** Invited Symposium. Bioremediation Overview, U.S. Department of Energy-Supported Research and Development n Central and Eastern Europe and Russia. September 1998, Warsaw, Poland. Fourth International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe (Warsaw'98).
1443. **Hazen, T. C.** Invited Workshop. Bioremediation: State-of-the-Science, Special Workshop on DOE projects in Poland. September 1998, Warsaw, Poland. Fourth International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe (Warsaw'98).
1444. Legrand, R., A. J. Morecraft, J. A. Harju, T. D. Hayes, and **T. C. Hazen**. Contributed. Field Application of in situ methanotrophic treatment for TCE remediation. May 1998, Monterey, CA.
1445. Tien, A. J., A. Worsztynowicz, K. Ulfig, D. Altman, and **T. C. Hazen**. Contributed. Comparison of Aeration and Nutrient Amendment Strategies during Bioremediation of Petroleum Sludge Contaminated Soils from A Polish Refinery- Batch and Soil Column Studies. May 1998, Atlanta, GA. American Society for Microbiology Annual Meeting.
1446. **Hazen, T. C.** and B. B. Looney. Invited Workshop. Bioremediation using SRS Patented Technologies. May 1998, Aiken, SC. Southeastern Environmental Resource Alliance sponsored workshop for remediation industry.
1447. Peters, N. E., M. Bonell, T. Hazen, S. Foster, M. Meybeck, W. Rast, G. Schneider, V. Tsirkunov, and J. Williams. Invited Symposium. Water Quality Degradation and Freshwater Availability — Need for A Global Initiative. UNESCO colloquium, entitled "Water - A Looming Crisis" April 1998, Paris, France.
1448. **Hazen, T. C.** Invited Symposium. "How do I know if in situ bioremediation is feasible?" March 1998, Notre Dame, IN. Bioremediation for Industry, Society for Industrial Microbiology.
1449. **Hazen, T. C.** Invited Symposium Co-Chair. In Situ Bioremediation: Natural vs. Accelerated. March 1998, Notre Dame, IN. Bioremediation for Industry, Society for Industrial Microbiology.
1450. **Hazen, T. C.** Invited Seminar. Field Bioremediation at SRS. January 1998, Arlington, VA. DOE Natural and Accelerated Bioremediation Research Program Investigators meeting.
1451. **Hazen, T. C.** Invited Seminar. Microbiological aspects of wastewater treatment for small communities and small sources. December 1997, Chirvanny, Slovak Republic. Sponsored by Heinz Endowment.
1452. **Hazen, T. C.** and B. B. Looney. Invited Workshop. Bioremediation using SRS Patented Technologies. December 1997, Aiken, SC. Southeastern Environmental Resource Alliance sponsored workshop for remediation industry.
1453. **Hazen, T. C.** Invited Seminar. Field Bioremediation strategies. November 1997, Germantown, MD. DOE Natural and Accelerated Bioremediation Research Program.
1454. **Hazen, T. C.** Invited Seminar. Aerobic bioremediation of chlorinated solvents. November 1997, Arlington, VA. George Mason University.
1455. **Hazen, T. C.** Invited Seminar. Aerobic bioremediation. November 1997, Orlando, FL. 3rd Annual Florida Remediation Conference.
1456. **Hazen, T. C.** Invited Seminar. Aerobic bioremediation strategies for landfills. October 1997, Athens, GA. Department of Microbiology, University of Georgia.
1457. **Hazen, T. C.** Newspaper Article. Students get a 'real' education by Bill Bengtson Interviews and pictures of students. October 24 1997, Aiken, SC. Aiken Standard Pages 1B,3B.
1458. **Hazen, T. C.** Newspaper Article. Student practice real science by Chasiti Kirkland Interviews and pictures of students. October 24 1997, Augusta, GA. Augusta Chronicle Pages 2B,6B
1459. **Hazen, T. C.** Invited Seminar/Tour. SRS Biotechnology School-to-Work Program. October 1997, Aiken, SC. Aiken County Schools Superintendent, Board and Principals.
1460. **Hazen, T. C.** Invited Conference. SRS Biosensor Research. October 1997, Washington, DC. DOE Biotechnology Interlaboratory Council meeting with Army JPO BioDefense.

1461. **Hazen, T. C.** Invited Workshop. In Situ Aerobic Co Metabolic Bioremediation of Chlorinated Solvents: Field Demonstrations. September 1997, Baltimore, MD. US Air Force Expert Panel on In Situ Aerobic Co Metabolic Bioremediation of Chlorinated Solvents.
1462. **Hazen, T. C.** Invited Seminar. Full-Scale field remediation Demonstrations: Lessons Learned. September 1997, Berkeley, CA. Lawrence Berkeley National Laboratory.
1463. **Hazen, T. C.** Invited Workshop. Bioremediation. September 1997, Katowice, Poland. Risk Abatement Center of Central and Eastern Europe.
1464. **Hazen, T. C.** Newspaper Article. Giving germs what they want - garbage as food by Jim Fasnacht. August 1997, Aiken, SC. SRS News.
1465. **Hazen, T. C.** Invited Seminar. Aerobic bioremediation in situ. August 1997, Reno, NV. Bioremediation Symposium Society for Industrial Microbiology.
1466. **Hazen, T. C.** Newspaper Article. SRS scientist studies bad water (with picture) by Karin Schill. Monday July 21 1997, Augusta, GA. Augusta Chronicle 2B & 5B.
1467. **Hazen, T. C.** Invited Moderator. July 1997, Boston, MA. Roundtable: Passive vs. Accelerated Remediation. Second Annual Novel Remediation Technology Symposium: Innovative Remedial Technologies for Cost Effective Site Solution.
1468. **Hazen, T. C.** Invited Seminar. July 1997, Boston, MA. In Situ Bioremediation using nutrient injection. Second Annual Novel Remediation Technology Symposium: Innovative Remedial Technologies for Cost Effective Site Solution.
1469. **Hazen, T. C.** Newspaper Article. SRTC microbiologist named to United Nations panel (with picture) by Angeline Fitzgerald. July 1997, Aiken, SC. SRS News p4.
1470. **Hazen, T. C.** Invited Seminar. July 1997, Berlin, Germany. In Situ Bioremediation of Chlorinated Solvents. WISTA and BIOPRACT Inc.
1471. **Hazen, T. C.** Invited Seminar. July 1997, Paris, France. Microbiological issues for Global Water Quality. United Nations Task Force on Global Water Quality.
1472. **Hazen, T. C.** Newsletter Article. People in Energy: Terry Hazen. July 1997, Washington, DC. DOE this Month 20:18.
1473. **Hazen, T. C.** Invited Panelist. June 1997, Aiken, SC. Groundwater Issues and Water Quality. Science Education for Public Understanding Workshop for middle and high school teachers in the Central Savannah River Area.
1474. **Hazen, T. C.** Newspaper Article. Hazen picked by United Nations (with picture) by R. Burris. June 12 1997, Aiken, SC. Aiken Standard
1475. **Hazen, T. C.** Invited Seminar. May 1997, Aiken, SC. Bioremediation. University of South Carolina, School of the Environment.
1476. **Hazen, T. C.** Trade Journal. PHOSter's Phosphorus-Charged Bacteria Speeds Cleanups. May 1997, Washington, DC. Underground Storage Tank Guide 9:4-5.
1477. Young, J. D., D. J. Altman, K. H. Lombard, A. W. Bourquin, D. C. Mosteller, and **T. C. Hazen**. Contributed. Sanitary landfill optimization test for remediation of chlorinated solvents. April 1997, New Orleans, LA. In Situ and On-Site Bioreclamation, The Fourth International Symposium.
1478. Ulfig, K., G. Plaza, **T. C. Hazen**, C. B. Fliermans, M. M. Franck, and K. H. Lombard. Contributed. Bioremediation treatability and feasibility studies at a polish petroleum refinery. April 1997, New Orleans, LA. In Situ and On-Site Bioreclamation, The Fourth International Symposium.
1479. Kastner, J. R., K. H. Lombard, J. Radway, **T. C. Hazen**, G. Burbage, D. J. Altman, M. M. Franck, F. A. Washburn, C. J. Berry, and R. L. Brigmon. Contributed. Bioventing vs. prepared beds for remediation of petroleum contaminated sites. April 1997, New Orleans, LA. In Situ and On-Site Bioreclamation, The Fourth International Symposium.
1480. Lombard, K. H., A. Worsztynowicz, **T. C. Hazen**, and B. Jagosz. Contributed. Bioremediation techniques for the clean up of a petroleum waste lagoon. April 1997, New Orleans, LA. In Situ and On-Site Bioreclamation, The Fourth International Symposium.
1481. Santo Domingo, J. W., B. E. Bumgarner, D. J. Altman, C. J. Berry, and **T. C. Hazen**. Contributed. Physiological response of subsurface microbial communities to nutrient additions. April 1997, New Orleans, LA. In Situ and On-Site Bioreclamation, The Fourth International Symposium.
1482. Radway, J. C., J. W. Santo Domingo, C. J. Berry, E. W. Wilde, and **T. C. Hazen**. Contributed. Degradation of trichloroethylene and benzene by embedded Burkholderia cepacia G4. April 1997, New Orleans, LA. In Situ and On-Site Bioreclamation, The Fourth International Symposium.
1483. **Hazen, T. C.** Invited Seminar. Bioremediation Technologies. March 1997, Columbia, SC. University of South Carolina, School of the Environment.
1484. **Hazen, T. C.** Invited Seminar. Aerobic bioremediation of chlorinated solvents: field demonstrations and studies. March 1997, Las Vegas, NV. U. S. Army Corps of Engineers Seventh Annual Combined Innovative Technology and Chemistry Workshop.

1485. **Hazen, T. C.** Invited Seminar. Dry Tomb vs. Bioremediation: are current regulations increasing our long-term liability. March 1997, Aiken, SC. SRS Groundwater Update Meeting.
1486. **Hazen, T. C.** Invited Seminar. Environmental Biotechnology Section Expertise. March 1997, Aiken, SC. Bechtel Environmental Restoration Division.
1487. **Hazen, T. C.** Invited Seminar & Review. Methane Biostimulation for Chlorinated Solvent Cleanup. February 1997, Chicago, IL. Gas Research Institute, Transco, and Radian International.
1488. **Hazen, T. C.** Invited Seminar & Tour. Bioremediation Demonstrations at the SRS. February 1997, Aiken, SC. Army Corps of Engineers & Woodward & Clyde.
1489. **Hazen, T. C.** Invited Dinner Seminar. Landfill Bioremediation or Why the 'Dry Tomb' approach should be Doomed. January 1997, Augusta, GA. CSRA chapter of AIChE.
1490. **Hazen, T. C.** Science Magazine Article. Slimmed down diet is best for soil-cleaning bacteria. January 11 1997, London, UK. New Scientist xxx:16.
1491. **Hazen, T. C.** Engineering Magazine Article. PHOSter Care. November/December 1996, New York, NY. Emerging Technology 3(6):1, 8-9 ASCE Publication.
1492. **Hazen, T. C.** Magazine Article. Phosphate-Accelerated Bioremediation. Fall 1996, Washington, DC. TIE Quarterly 5(2):6 USDOE Office of Environmental Restoration.
1493. **Hazen, T. C.** Trade Magazine Article. Mom & Pop Clean up. December 1996, New York, NY. Initiatives in Environmental Technology Investment 3:4-5 Publication of Urban Energy & Transportation Corporation
1494. **Hazen, T. C.** Invited Chairperson. Natural Attenuation. December 1996, Annapolis, MD. IBC's Second Annual International Symposium on Intrinsic Bioremediation.
1495. **Hazen, T. C.**, K. H. Lombard, and E. W. Wilde. Invited Seminar and Tour. Bioremediation Demonstrations by the Biotechnology Group at SRS. October 1996, Aiken, SC. Japanese Business and Technology Reps (12).
1496. **Hazen, T. C.** Invited Seminar. Aerobic bioremediation of chlorinated solvents: field demonstrations and studies. October 1996, Lincoln, NE. Nebraska Department of Environmental Control and Army Core of Engineers.
1497. **Hazen, T. C.** Invited Seminar. Aerobic bioremediation of chlorinated solvents: field demonstrations and studies. October 1996, Kansas City, MO. Missouri Department of Environmental Control, Region 5 EPA, and Army Core of Engineers.
1498. **Hazen, T. C.** Invited Seminar. Landfill leachate biotreatment. October 1996, Aiken, SC. Federal Facilities Quarterly Meeting (EPA-R4, SCDHEC, GAEPD, DOE-SRS).
1499. **Hazen, T. C.** Invited Tour. Bioremediation demonstrations at SRS. October 1996, Aiken, SC. Tour of Japanese EPA (20 officials) of SRS sites.
1500. **Hazen, T. C.** Invited Seminar. Bioremediation field demonstrations: Lessons learned. October 1996, Houghton, MI. Michigan Technological University.
1501. Kastner, J. R., J. Radway, **T. C. Hazen**, K. H. Lombard, G. Burbage, D. J. Altman, M. M. Franck, F. A. Washburn, C. J. Berry, and R. L. Brigmon. Invited Seminar. Bioventing vs. prepared beds for remediation of petroleum contaminated sites. September 1996, Birmingham, AL. Emerging Technologies in Hazardous Waste Management VIII, American Chemical Society.
1502. **Hazen, T. C.** Invited Seminar. Aerobic bioremediation of chlorinated solvents: field demonstrations and studies. September 1996, Zurich, Switzerland. EAWAG Swiss Institute.
1503. Ulfig, K., G. Plaza, **T. C. Hazen**, C. B. Fliermans, M. M. Franck, and K. H. Lombard. Contributed. Bioremediation Treatability and Feasibility Studies at a Polish Petroleum Refinery. September 1996, Warsaw, Poland. Third International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe.
1504. Lombard, K. H., A. Worsztynowicz, **T. C. Hazen**, and B. Jagosz. Contributed. The Demonstration Of Bioremediation techniques for the clean up of a process waste lagoon at the Czechowice Oil Refinery in Czechowice-Dziedzice, Poland. September 1996, Warsaw, Poland. Third International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe.
1505. **Hazen, T. C.**, K. H. Lombard, J. Wear, B. B. Looney, M. V. Enzien, J. M. Dougherty, C. B. Fliermans, M. M. Franck and C. A. Eddy-Dilek. Contributed. Full Scale demonstration of in situ bioremediation of chlorinated solvents in the deep subsurface using gaseous nutrient biostimulation. September 1996, Warsaw, Poland. Third International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe.
1506. **Hazen, T. C.**, K. H. Lombard, D. J. Altman, F. A. Washburn, C. J. Berry, J. D. Young, A. Bourquin, M. M. Franck, R. L. Brigmon, E. Becker, and J. Santo Domingo. Contributed. Bioremediation of groundwater at a sanitary landfill using biosparging and gaseous nutrient injection. September 1996, Warsaw, Poland. Third International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe.
1507. Kastner, J. R., J. Radway, **T. C. Hazen**, K. H. Lombard, G. Burbage, D. J. Altman, M. M. Franck, F. A. Washburn, C. J. Berry, and R. L. Brigmon. Contributed. Bioventing vs. prepared beds for remediation of petroleum contaminated sites. September 1996, Warsaw, Poland. Third International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe.

1508. **Hazen, T. C.** Invited Seminar. Advances in bioremediation of groundwater and soil. September 1996, Warsaw, Poland. Third International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe.
1509. Altman, D. J., **T. C. Hazen**, R. Legrand, R. Hickey, K. H. Lombard, F. A. Washburn, and C. J. Berry. Invited. Methanotrophic treatment of contaminated well water using bioreactors. September 1996, Warsaw, Poland. Third International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe.
1510. **Hazen, T. C.** Newspaper Article. Project will demonstrate remediation technology. November/December 1996, Atlanta, GA. Georgia Environmental News 3/9: 1.
1511. **Hazen, T. C.** Invited. Bioremediation demonstrations at SRS - tour. August 1996, Aiken, SC. Faculty from the University of Tennessee.
1512. **Hazen, T. C.** Invited. Biotechnology "work for others" at SRS. August 1996, Aiken, SC. SRS Environmental Advisory Committee.
1513. **Hazen, T. C.** Invited Seminar. Biotechnology for SRS. August 1996, Washington, DC. DOE, DOD and visiting Poland Diplomats.
1514. **Hazen, T. C.** Invited Seminar. Biotechnology for SRS. July 1996, Aiken, SC. Visiting Navy Command.
1515. **Hazen, T. C.** Invited Seminar. Biotechnology for SRS. July 1996, Aiken, SC. TNX Operations.
1516. **Hazen, T. C.** Invited Seminar. Biotechnology for SRS. July 1996, Aiken, SC. Visiting Army General.
1517. **Hazen, T. C.** Invited Seminar. Bioremediation. June 1996, Minneapolis, MN. Army Ammunition Plant.
1518. **Hazen, T. C.** Invited Seminar. Bioremediation. June 1996, St. Paul, MN. Minnesota Pollution Control Agency.
1519. **Hazen, T. C.** Invited Seminar. Biostimulation using methane and PHOSter. June 1996, Nashville, TN. Southern Energy Board.
1520. **Hazen, T. C.** Invited Seminar. Biotechnology for SRS. June 1996, Aiken, SC. Visiting Swiss officials.
1521. **Hazen, T. C.** Invited Seminar. Bioremediation Optimization Plans at the D-area Oil Seepage Basin. June 1996, Columbia, SC. South Carolina Department of Health and Environmental Control.
1522. **Hazen, T. C.**, and K. H. Lombard. Invited. Tours and presentations of bioremediation at the Poland demonstration site. May 1996, Katowice, Poland. Polish Institute for Ecology of Industrial Areas.
1523. Franck*, M. M., **T. C. Hazen**, K. H. Lombard, D. J. Altman, R. L. Brigmon, and C. B. Fliermans. Contributed. The use of immunoassay techniques for TPH and BTEX with diesel contaminated soils in a prepared bed bioreactor. May 1996, New Orleans, LA. Annual Meeting of the American Society for Microbiology.
1524. **Hazen, T. C.** Invited Seminar. In Situ Bioremediation Field Demonstration. May 1996, Chicago, IL. Northwestern University.
1525. **Hazen, T. C.** Invited Presentation. Biostimulation. May 1996, Washington, DC. IBC Workshop on Bioremediation vs. Bioaugmentation.
1526. **Hazen, T. C.** Invited Chairman. Biostimulation vs. Bioaugmentation Workshop. May 1996, Washington, DC. IBC Workshop on Bioremediation vs. Bioaugmentation.
1527. **Hazen, T. C.** Invited Presentation. Groundwater technologies. May 1996, Washington, DC. IBC Conference on Innovative Remediation Technologies.
1528. **Hazen, T. C.** Invited Chairman. Groundwater Session. May 1996, Washington, DC. IBC Conference on Innovative Remediation Technologies.
1529. Feature Article in International Groundwater Technology 2:7-9. April 1996. How methane Injection attacks Chlorinated Solvents by J. A. Sutfin.
1530. **Hazen, T. C.**, K. H. Lombard, J. R. Kastner, D. J. Altman, M. M. Franck, F. A. Washburn, C. J. Berry, and R. L. Brigmon. Invited Seminar. Bioventing vs. Prepared Beds for Remediation of Petroleum Contaminated Soil. March 1996, New Orleans, LA. Annual meeting of the American Chemical Society.
1531. **Hazen, T. C.** Invited Seminar. Monitoring Bioremediation: the hope and the hype. February 1996, Berkeley, CA. Center for Environmental Biotechnology, Berkeley National Laboratory and University of California, Berkeley.
1532. **Hazen, T. C.** Invited Seminar. Monitoring Bioremediation: the hope and the hype. February 1996, Caguas, PR. University of Turabo, Ana Menendez Foundation.
1533. **Hazen, T. C.** TV interview. PHOSter technology transfer by Southeastern Technology Center. February 15, 1996. Channel 12 News 11 and morning show.
1534. **Hazen, T. C.**, B. B. Looney, and K. H. Lombard. Invited Press Conference. PHOSter technology transfer by Southeastern Technology Center. February 1996, Aiken, SC. Aiken Municipal Building.
1535. **Hazen, T. C.** Invited Tour and Presentation. Biotechnology at SRS. February 1996, Aiken, SC. U.S. Army Technology Center Representatives.
1536. **Hazen, T. C.** Invited Tour and Presentation. Biotechnology at SRS. February 1996, Aiken, SC. Booz, Allen, Hamilton Inc.
1537. **Hazen, T. C.** Invited Speaker. SRS Biotechnology. January 1996, Chicago, IL. Argonne National Laboratory.

1538. **Hazen, T. C.** Invited Speaker. SRS Biotechnology. December 1995, Panama City, FL. Armstrong Laboratory, Tyndall USAF.
1539. **Hazen, T. C.** Invited Keynote Speaker. Measuring Bioremediation. December 1995, Colorado Springs, CO. Institute for Gas Technologies Eighth International Symposium on Gas, Oil, and Environmental Biotechnology.
1540. **Hazen, T. C.** Invited Speaker. SRS Biotechnology. December 1995, Aiken, SC. Utilities Industry Consortium. Seminar and Tour.
1541. **Hazen, T. C.** Invited Speaker. SRS Biotechnology. December 1995, Aiken, SC. US Air Force Center for Environmental Excellence, Brooks AFB, San Antonio. Seminar and Tour.
1542. **Hazen, T. C.** Invited Speaker. SRS Biotechnology. December 1995, Aiken, SC. Concurrent Technologies Corporation. Seminar and Tour.
1543. **Hazen, T. C.** Invited Seminar. Bioremediation Demonstrations at DOE's Savannah River Site. November 1995, Charleston, South Carolina. Medical University of South Carolina.
1544. **Hazen, T. C.** Invited Seminar. Field and Soil Column Studies of Reductive Dechlorination in Bulk Aerobic Aquifers. October 1995, Annapolis, Maryland. IBC's International Symposium on Biological Dehalogenation.
1545. **Hazen, T. C.** Invited Seminar. Field Studies of Intrinsic Bioremediation of Chlorinated Solvents in Anaerobic/Aerobic areas. October 1995, Annapolis, Maryland. IBC's International Symposium on Intrinsic Bioremediation.
1546. **Hazen, T. C.** Invited Seminar. Bioremediation Demonstrations at DOE's Savannah River Site. October 1995, Houghton, MI. Michigan Technological Institute.
1547. **Hazen, T. C.** Invited Seminar. Bioremediation of toxic waste sites - using the natural cleansing capacity of the environment. September 1995, Katowice, Poland. Institute for Industrial Ecology.
1548. **Hazen, T. C.** Invited seminar and Organizer. Aerobic Bioremediation of Chlorinated Solvents. September 1995, Aberdeen, Scotland. International Symposium on Advances in Bioremediation sponsored by American Society for Microbiology and European Society of Microbiologists.
1549. Arias, W., and **T. C. Hazen**. Contributed. Ability of an environmental *Escherichia coli* isolate to survive and multiply in algal exudates of tropical microbial epilithic communities. September 1995, Sao Paulo, BRAZIL. Seventh International Symposium on Microbial Ecology.
1550. **Hazen, T. C.** Invited Seminar. Full-Scale Demonstration of In Situ Bioremediation of Chlorinated Solvents in the Deep Subsurface Using Gaseous Nutrient Biostimulation. September 1995, Sao Paulo, BRAZIL. Seventh International Symposium on Microbial Ecology.
1551. **Hazen, T. C.** Invited Seminar. Bioremediation Demonstrations at the Savannah River Site. August 1995, Tallahassee, FL. Florida State University.
1552. **Hazen, T. C.** Invited Seminar. Bioremediation of landfills with options for the Columbia County landfill. August 1995, Atlanta, GA. Georgia Environmental Protection Department.
1553. **Hazen, T. C.** Invited Seminar. Bioremediation Demonstrations at the Savannah River Site. July 1995, Minneapolis, MN. Minnesota Pollution Control Agency.
1554. **Hazen, T. C.** Invited Keynote Address. Importance of Interdisciplinary Interactions for Large Field Remediation Projects. July 1995, Gleneden Beach, Oregon. From the Flask to the Field: 1995 EPA Five Hazardous Substance Research Centers.
1555. **Hazen, T. C.** Invited Seminar. In Situ Bioremediation of Sanitary Landfills. July 1995, Washington, DC. National Research Council.
1556. **Hazen, T. C.** Newspaper Article Interview. "Microbes clean chemical contaminates from soil" by Karin Schill. July 20 1995, Augusta, GA. Augusta Chronicle p 6C.
1557. Legrand*, R., R. Baker, and **T. C. Hazen**. Invited Seminar. Field Demonstration of the Methanotrophic Fluidized Bed Bioreactor at the Savannah River Site. June 1995, San Antonio, TX. 88Th Air and Waste Management Associations Annual Meeting and Exhibition.
1558. **Hazen, T. C.** Invited Seminar and Tour. Bioremediation at SRS. June 1995, Aiken, SC. Visiting Provost University of South Carolina.
1559. **Hazen, T. C.** Invited Seminar and Tour. Bioremediation at SRS. June 1995, Aiken, SC. Visiting Group from Minnesota Department of Environmental Protection.
1560. Hazen*, T. C., D. Altman, and K. H. Lombard. Invited Seminar. Bioremediation Options for the Columbia County Landfill. June 1995, Evans, GA. Columbia County Board of Commissioners.
1561. **Hazen, T. C.** Invited Seminar and Tour. Bioremediation at SRS. June 1995, Aiken, SC. Visiting Group of State, County and Municipal Regulators from around South Carolina.
1562. Fliermans*, C. B., M. M. Franck, **T. C. Hazen**, and R. W. Gorden. Contributed. Ecofunctional Enzymes of Microbial Communities in Groundwater. May 1995, Washington, D.C. Annual Meeting of the American Society for Microbiology.
1563. **Hazen, T. C.** Feature Newspaper Article. Teams from SRS Snare a Pair of Signature Awards by Pat Weber. June 1995, Aiken, SC. SRS News pg 1.

1564. Hazen*, T. C., K. H. Lombard, B. B. Looney, M. Enzien, J. M. Dougherty, C. B. Fliermans, and C. A. Eddy-Dilek. Contributed. Bioremediation Visualization Using 3D Models of Parameters. May 1995, Washington, D.C. Annual Meeting of the American Society for Microbiology
1565. **Hazen, T. C.** Invited. Methanotrophic Bioreactor Demonstration for Ground Water Cleanup. May 1995. Strategic Environmental Research and Development Program, Scientific annual program review. Washington, DC.
1566. **Hazen, T. C.** Newspaper Article. Superheroes: Mother Nature provides a new breed of Pollution-eating microbes used to clean up waste at Savannah River Site by M. Livingston. May 2 1995, Columbia, SC. The State page D1 and D2. Circulation: 171,200.
1567. Lombard, K. H., M. M. Franck*, and **T. C. Hazen**. Contributed. The Savannah River Site sOILS Facility: Immunoassay Techniques for TPH and BTEX Contamination Monitoring in a Soils Bioremediation Facility. April 1995, San Diego, CA. In Situ and On-Site Bioreclamation, The Third International Symposium.
1568. **Hazen, T. C.**, A. W. Bourquin*, N. O'Halloran, K. Lombard, D. Jackson, C. J. Berry, and C. Lockett. Contributed. In Situ Optimization Studies for Bioremediation of a Sanitary Landfill Groundwater Plume. April 1995, San Diego, CA. In Situ and On-Site Bioreclamation, The Third International Symposium.
1569. Hazen*, T. C., K. H. Lombard, B. B. Looney, M. V. Enzien, J. M. Dougherty, C. B. Fliermans, J. Wear, and C. A. Eddy-Dilek. Invited Seminar. In Situ Bioremediation Via Horizontal Wells. April 1995, San Diego, CA. In Situ and On-Site Bioreclamation, The Third International Symposium.
1570. Eddy-Dilek, C A, R. L. Nichols, R. N. Sims, B. B. Looney, E. L. Funderburk, and **T. C. Hazen***. Contributed. Video Animation of New Technologies for Cleanup of Solvents in Soils and Groundwater. April 1995, San Diego, CA. In Situ and On-Site Bioreclamation, The Third International Symposium.
1571. Gorden, R. W., **T. C. Hazen***, K. Lombard, T. Hayes, R. Legrand, R. Hickey, and F. Sappington. Contributed. Methanotrophic Hybrid Bioreactors for on Site Bioremediation. April 1995, San Diego, CA. In Situ and On-Site Bioreclamation, The Third International Symposium.
1572. **Hazen, T. C.** Invited Seminar. Methanotrophic Bioreactors for Treatment of Groundwater Contaminated with Chlorinated Solvents. April 1995, Washington, DC. Strategic Environmental Research and Development Program Annual Symposium.
1573. **Hazen, T. C.** and K. H. Lombard. Invited Seminar. SRS Sanitary Landfill Bioremediation Optimization Test. April 1995, Columbia, SC. South Carolina Department of Health and Environmental Control RCRA Group.
1574. **Hazen, T. C.** Invited Seminar. Full Scale In Situ Bioremediation Demonstration of Chlorinated Solvent Contamination in Soil and Groundwater. April 1995, Atlanta, GA. Department of Environmental Engineering, Georgia Institute of Technology.
1575. **Hazen, T. C.** Invited Seminar. Bioremediation of organic vapors. April 1995, Rochester, NY. Kodak Corporation
1576. **Hazen, T. C.** Feature Article Pictures. Bioremediation by R. Atlas. April 3 1995, New York, NY. Chemical & Engineering News 73(14):32-42
1577. **Hazen, T. C.** Newsletter. In situ Bioremediation via horizontal wells. March 1995, Denver, CO. Horizontal News 1(1):4.
1578. **Hazen, T. C.** Invited Seminar. Advances in Bioremediation of Soil and Groundwater at U. S. Department of Energy Sites. March 1995, Tahoe, CA. Keystone Symposia on Environmental Biotechnology.
1579. **Hazen, T. C.** Invited Seminar. Monitoring of in situ Biodegradations. March 1995, Knoxville, TN. Third International Symposium on the Interface between Analytical Chemistry and Microbiology.
1580. **Hazen, T. C.**, C. J. Berry, and R. Brigmon. Invited. Mobile Methanotrophic Bioreactor for Groundwater Cleanup. February 1995, Augusta, GA. SRS Engineering Day Symposium at the Augusta Civic Center.
1581. **Hazen, T. C.** Newsletter. Patent 5384048. Bioremediation of Contaminated Groundwater. February 1995, Washington, DC. The Bioremediation Report 4(2):11.
1582. **Hazen, T. C.** Bioremediation at SRS. February 1995, Aiken, SC. Special seminar to Board of Directors of Westinghouse Savannah River Company and Westinghouse Electric Company.
1583. **Hazen, T. C.** Invited. Bioremediation at SRS and Tour. January 1995, Aiken, SC. Special seminar and tour for the SRS Environmental Advisory Committee.
1584. **Hazen, T. C.** Invited Seminar. Bioremediation of Groundwater. December 1994, Atlanta, GA. Westinghouse Waste & Environmental Information Exchange.
1585. **Hazen, T. C.** Invited Seminar. Bioremediation at the Savannah River Site. December 1994, Washington, D.C. Special seminar for the U. S. Department of Energy Biotechnology Interlaboratory Council.
1586. **Hazen, T. C.** Seminar and Tour. Bioremediation at the Savannah River Site. November 1994, Aiken, SC. Special seminar and tour for representatives from Spelman College, Atlanta, Georgia.
1587. **Hazen, T. C.** Invited Seminar. Full-Scale Bioremediation Demonstrations at the Savannah River Site. November 1994, Columbia, SC. Department of Civil Engineering, University of South Carolina.

1588. **Hazen, T. C.** Invited Seminar. In Situ Bioremediation Demonstration (Methane Biostimulation) of the Savannah River Site Integrated Demonstration Project. November 1994, Logan, UT. Department of Environmental Engineering. Utah State University.
1589. **Hazen, T. C.**, K. H. Lombard, B. B. Looney, M. V. Enzien, J. M. Dougherty, C. B. Fliermans, John Wear, and C. A. Eddy-Dilek. Invited Seminar. In Situ Bioremediation Demonstration (Methane Biostimulation) of the Savannah River Site Integrated Demonstration Project. November 1994, Hanford, WA. DOE Hanford Symposium.
1590. **Hazen, T. C.** Newspaper Article. Drillers find lost world of ancient microbes by W. J. Broad (picture). October 4 1994, New York, NY. New York Times pg B9.
1591. **Hazen, T. C.** Article in Trade Journal. The sOILS Facility for the Bioremediation of petroleum-contaminated soil was used as an example in Environmental Feature on "Choosing the Right Remediation Contractor". October 1994, Washington, DC. The Engineers Digest (cir. 123,600) p. 62-65.
1592. **Hazen, T. C.** Invited Seminar. Bioremediation at the Savannah River Site. October 1994, Columbia, SC. Special Seminar for State Senator.
1593. Lombard, K. H., and **T. C. Hazen**. Invited Seminar. a petroleum contaminated soil bioremediation facility. August 1994, Atlanta, GA. American Nuclear Society Spectrum94.
1594. **Hazen, T. C.**, K. H. Lombard, B. B. Looney, M. V. Enzien, J. M. Dougherty, C. B. Fliermans, J. Wear, and C. A. Eddy-Dilek. Invited Seminar. Preliminary Technology Report for In Situ Bioremediation Demonstration (Methane Biostimulation) of the Savannah River Site Integrated Demonstration Project. August 1994, Atlanta, GA. American Nuclear Society Spectrum94.
1595. **Hazen, T. C.** Newspaper Article. SRS celebrates milestone in ground water treatment by S. D. Hale (interview). August 1994, Augusta, GA. Augusta Chronicle.
1596. **Hazen, T. C.** Newsletter. Patent 5,324,661 Chemotactic selection of pollutant degrading soil bacteria was featured in the Patents section. July 1994, Washington, DC. The Bioremediation Report 3(7):11.
1597. **Hazen, T. C.** Newsletter. Savannah River Opens Cleanup Facility. Article on sOILS Bioremediation Facility. July 1994, Washington, DC. DOE This Month.
1598. **Hazen, T. C.** Magazine Article. Researchers use SCE&G natural gas for clean-ups. July 1994, Washington, DC. SCANA Insights pg 28 (interview)
1599. Fliermans*, C. B., **T. C. Hazen**, and R. L. Tyndall. Contributed. Decade of Monitoring *Legionella pneumophila* in Southeastern Cooling Towers. June 1994, Orlando, FL. ASHRAE Annual Symposium
1600. **Hazen, T. C.** Newsletter. SRS Integrated Demo, In Situ Bioremediation, Bioreactor project will demonstrate gas-phase bioremediation, sOILS Facility uses naturally occurring microbes to cleanup oil in soils. June 1994, Washington, DC. DOE TIE Quarterly Vol. 3 pgs 6, 10, 11, and 13
1601. **Hazen, T. C.** Newspaper Article. "Good environmental news at SRS" by Charles Ray. June 4, 1994, Charleston, SC. Charleston Post & Courier pg 18A.
1602. **Hazen, T. C.** Invited Seminar. Bioremediation at SRS. June 1994, Aiken, SC (SRS). Meeting with representatives of Institute for Wood Research.
1603. **Hazen, T. C.** Newspaper Article. SRS takes up raising bugs?? by Pat Weber. June 1994, Aiken, SC. SRS News pg 6.
1604. **Hazen, T. C.** Newspaper Article. Microbe Recruits Devour Smorgasbord of Pollution Interview of **T. C. Hazen**. May 28 1994, Cleveland, OH. The Cleveland Plain Dealer: Page 10A.
1605. **Hazen, T. C.** Newspaper Article. Weapons Plant Cleanup: Army of soil microbes wins war on toxic waste by Mike Toner Interview of **T. C. Hazen**. May 27 1994, Atlanta, GA. The Atlanta Journal/The Atlanta Constitution: Page A4.
1606. Fliermans, C. B., J. E. Wear, M. M. Franck, P. C. McKinsey*, and **T. C. Hazen**. Contributed. Use of Biolog Technology to assess remediation and groundwater perturbations. May 1994, Las Vegas, NV. Annual Meeting of the American Society for Microbiology.
1607. Enzien*, M. V., **T. C. Hazen**, C. B. Fliermans, M. M. Franck, and P. McKinsey. Contributed. Microbial community structure in unsaturated sediments during in situ bioremediation of chlorinated solvents. May 1994, Las Vegas, NV. Annual Meeting of the American Society for Microbiology.
1608. Hazen*, T. C., B. B. Looney, M. Enzien, J. M. Dougherty, J. Wear, C. B. Fliermans, and C. A. Eddy. Contributed. In Situ Bioremediation of Chlorinated-Solvents Via Horizontal Wells. May 1994, Las Vegas, NV. Annual Meeting of the American Society for Microbiology.
1609. **Hazen, T. C.** Newspaper Article. SRS sees Future in Soil Bacteria, Researchers Say by Stephan Delaney Hale. Interviews and pictures of **T. C. Hazen** and K. H. Lombard. May 21 1994, Augusta, GA. Augusta Chronicle Pages 15-16A.
1610. **Hazen, T. C.** Invited Seminar. SRS Bioremediation Technologies. April 1994, Aiken, SC. Andrews Environmental.
1611. **Hazen, T. C.** Invited Seminar. Advances in Bioremediation. April 1994, Aiken, SC. Annual meeting of the South Carolina Academy of Science.

1612. **Hazen, T. C.** TV Interview Video. "DOE Strategic Plan 'Town Meeting' National Teleconference. 11 am April 26 1994, DOE Complex. DOE Complex, 74 minutes.
1613. **Hazen, T. C.** Invited. Earth Day seminar on "Pollution". April 21, 1994. Augusta, GA. Sixth Grade Science Classes at Tutt Middle School in Augusta.
1614. **Hazen, T. C.** Invited. Bioremediation at SRS. March 1994. SRS, Aiken, SC. AMTEX, American Textiles Industry Consortium.
1615. **Hazen, T. C.** Invited. Methanotrophic Bioreactor Demonstration for Ground Water Cleanup. March 1994, Washington, DC. Strategic Environmental Research and Development Program, Scientific Advisory Board.
1616. **Hazen, T. C.** Invited. Methanotrophic Bioremediation Demonstrations at SRS. March 1994, Aiken, SC. South Carolina Electric and Gas Company at SRS with Tour of SRS.
1617. **Hazen, T. C.**, B. B. Looney, M. Enzien, J. M. Dougherty, J. Wear, C. B. Fliermans, and C. A. Eddy. Contributed. In Situ Bioremediation of Chlorinated Solvents Via Horizontal Wells. March 1994. Atlanta, GA. Second International Conference on Groundwater Ecology sponsored by the EPA and the American Water Resources Association.
1618. Fliermans*, C. B., J. E. Wear, M. M. Franck, P. C. McKinsey and **T. C. Hazen**. Contributed. Immunological Techniques As Tools To Characterize The Subsurface Communities In Pristine and Contaminated Sites. March 1994. Atlanta, GA. Second International Conference on Groundwater Ecology sponsored by the EPA and the American Water Resources Association.
1619. **Hazen, T. C.** Newspaper Article. Got contaminated soil? Get your PHOSter here by Pat Weber (interview and picture). March 1994, Aiken, SC. SRS News.
1620. **Hazen, T. C.** Invited Seminar. Advances in Bioremediation of Soil and Groundwater. February, 1994, Chicago, IL. Pittsburgh Conference annual meeting.
1621. **Hazen, T. C.** Invited Seminar. Bioremediation of DOE Waste Sites. February, 1994, Tempe, AZ. Arizona State University.
1622. **Hazen, T. C.**, K. Lombard, and C. Berry. Invited Poster. Methanotrophic bioreactors for the remediation of solvent contaminated ground water. February, 1994, Augusta, GA. WSRC/BSRI technical day at the Augusta/Richmond County Civic Center in Augusta, Georgia.
1623. **Hazen, T. C.**, K. Lombard, J. M. Dougherty, M. Enzien, J. Wear, C. B. Fliermans, and C. A. Eddy. Invited Poster. In Situ Bioremediation Via Horizontal Wells. February, 1994, Augusta, GA. WSRC Environmental Restoration Department. WSRC/BSRI technical day at the Augusta/Richmond County Civic Center in Augusta, Georgia.
1624. **Hazen, T. C.** Invited Poster. sOILS Facility for Bioremediation of Petroleum Contaminated Soil. February, 1994, Augusta, GA. WSRC Environmental Restoration Department. WSRC/BSRI technical day at the Augusta/Richmond County Civic Center in Augusta, Georgia.
1625. **Hazen, T. C.** Newspaper Article. "SRS gets $1.6 million for Environmental Cleanup" by S. D. Hale. Wednesday February 17 1994, Augusta, GA. Augusta Chronicle.
1626. **Hazen, T. C.** Invited. Integrated In Situ Bioremediation Demonstration. February 1994, Houston, TX. Mid-Year Review DOE-OTD-In Situ Remediation Integrated Program.
1627. **Hazen, T. C.** Invited Seminar. sOILS Facility for Bioremediation of Petroleum Contaminated Soil. February 1994, Aiken, SC. WSRC Environmental Restoration Department.
1628. **Hazen, T. C.** Invited. Integrated In Situ Bioremediation Demonstration. February 1994, Augusta, GA. Mid-Year Review. DOE-OTD-Integrated Demonstration Program.
1629. **Hazen, T. C.** Newspaper Article. New Money for Bioreactor Research. January 1994, Aiken, SC. SRS News Circulation 20,000.
1630. **Hazen, T. C.** Invited Seminar. SRS Sanitary Landfill Treatability Study. January 1994, Aiken, SC. WSRC Environmental Restoration Department.
1631. **Hazen, T. C.** Invited. Methanotrophic Bioreactor Demonstrations Proposal. January 1994, Los Alamos, New Mexico. Scientific Advisory Board, Strategic Environmental Research and Development Program (DOD-DOE-EPA).
1632. **Hazen, T. C.** Invited Seminar. Bioremediation Needs and Future. December 1993, Columbia, SC. South Carolina University Research and Education Foundation Strategic Planning Committee.
1633. **Hazen, T. C.** Invited Seminar. Bioremediation of DOE Waste Sites. December 1993, Bloomington, IN. Indiana University.
1634. **Hazen, T. C.** Integrated In Situ Bioremediation Demonstration. Invited Seminar. December 1993, Bloomington, IN. Indiana University.
1635. **Hazen, T. C.**, J. M. Dougherty, M. Enzien, J. Wear, C. B. Fliermans, C. A. Eddy, and K. Lombard. Invited Seminar. In Situ Bioremediation Via Horizontal Wells. December 1993, Colorado Springs, CO. Institute for Gas Technologies Sixth International Symposium on Gas, Oil, and Environmental Biotechnology.
1636. **Hazen, T. C.** Magazine Article. SRS - Inventing the Future! By D. McDonald (Pictures and interview). October 1993, New York, NY. The Business Journal pgs 20-22, 40.

1637. Hazen*, T. C., J. M. Dougherty, M. Enzien, M. M. Franck, C. B. Fliermans, and C. A. Eddy. Invited Speaker. In Situ Bioremediation Via Horizontal Wells. September 1993, Atlanta, GA. Emerging Technologies in Hazardous Waste Management V, The Industrial & Engineering Chemistry Division of the American Chemical Society.
1638. Fliermans, C. B., J. E. Wear, M. M. Franck, P. C. McKinsey, and **T. C. Hazen***. Contributed. Use of BIOLOG® technology to access remediation and groundwater perturbations. September 1993, Salamanca, Spain. 11th International Symposium on Environmental Biogeochemistry.
1639. Fliermans*, C. B., J. E. Wear, M. M. Franck, P. C. McKinsey, and **T. C. Hazen**. Contributed. Immunological techniques as tools to characterize the subsurface communities in pristine and contaminated sites. September 1993, Salamanca, Spain. 11th International Symposium on Environmental Biogeochemistry.
1640. Fliermans, C. B., J. E. Wear, M. M. Franck, P. C. McKinsey, and **T. C. Hazen***. Contributed. Use of BIOLOG® technology to access remediation and groundwater perturbations. September 1993, Bath, United Kingdom. International Symposium on Subsurface Microbiology.
1641. Fliermans*, C. B., J. E. Wear, M. M. Franck, P. C. McKinsey, and **T. C. Hazen**. Contributed. Immunological techniques as tools to characterize the subsurface communities in pristine and contaminated sites. September 1993, Bath, United Kingdom. International Symposium on Subsurface Microbiology.
1642. **Hazen, T. C.** Invited Seminar. SRS In Situ Bioremediation Integrated Demonstration. September 1993, Manhattan, Kansas. EPA/HSRC & Kansas State University Seminar.
1643. **Hazen, T. C.** Invited Seminar. Biodegradation of Chlorinated Solvents and Vegetation Enhancement. September 1993, Manhattan, Kansas. EPA/HSRC & Kansas State University Seminar.
1644. **Hazen, T. C.** Radio Interview. SRS In Situ Bioremediation Integrated Demonstration. September 1993, Manhattan, Kansas. Kansas State University Radio
1645. **Hazen, T. C.** Invited Seminar. Deep Subsurface Microbiology. September 1993, Manhattan, Kansas. Department of Agronomy, Kansas State University.
1646. **Hazen, T. C.** Invited Seminar. SRS In Situ Bioremediation Integrated Demonstration. September 1993, Knoxville, TN. Graduate Course on Microbiological Site Assessment: Characterization and Monitoring.
1647. **Hazen, T. C.** Invited Seminar. SRS In Situ Bioremediation General Principals. September 1993, Knoxville, TN. Graduate Course on Microbiological Site Assessment: Characterization and Monitoring.
1648. **Hazen, T. C.** Newspaper Article. Lets make a deal by Pat Weber (picture and interview). September 1993, Aiken, SC. SRS News.
1649. Edwards, N. T., B. T. Walton, T. A. Anderson, J. J. Beauchamp, L. W. Cooper, R. J. Luxmoore, E. G. O'Neill, G. S. Sayler, D. C. White, and **T. C. Hazen**. Invited Seminar. The Use of Vegetation for Bioremediation of Surface Soils Contaminated with Trichloroethylene. August 1993, Augusta, GA. SRS-DOE Supplier Information Exchange Forum.
1650. Lombard*, K. H., J. Borthen, and **T. C. Hazen**. Invited Seminar. Design and Configuration Management of System Control Components for in situ Methanotrophic Bioremediation of Groundwater and Sediment Contaminated with Chlorinated Hydrocarbons. August 1993, Augusta, GA. SRS-DOE Supplier Information Exchange Forum.
1651. **Hazen, T. C.**, and K. Lombard. Invited Seminar. Full-Scale Prepared Bed Bioremediation Facility for Petroleum-Contaminated Soil. August 1993, Augusta, GA. SRS-DOE Supplier Information Exchange Forum.
1652. Berry*, C. J., and **T. C. Hazen**. Invited Seminar. Methanotrophic Treatment of Contaminated Well Water Using a Pilot Scale Bioreactor. August 1993, Augusta, Georgia, SRS-DOE Supplier Information Exchange Forum.
1653. Borthen*, J., F. Meyer, K. Lombard, and **T. C. Hazen**. Contributed. Catalytic oxidation of trichloroethylene and perchloroethylene mixtures. August 1993, San Francisco, CA. American Institute of Chemical Engineers 1993 Summer National Meeting: Control and Measurement of VOC Emissions.
1654. **Hazen, T. C.** Newspaper Article and Pictures. The Integrated Demonstration: An Update. Summer 1993, Aiken, SC. SRS Environmental Bulletin 4(10):1-5 Circulation 20,000.
1655. Hazen*, T. C. Invited Seminar. Full-Scale Prepared Bed Bioremediation Facility for Petroleum-Contaminated Soil. July 1993, Aiken, SC. Savannah River Site Central Environmental Committee.
1656. **Hazen, T. C.** Newspaper Article and Pictures. Bioremediation Sampling in M Area. July 28 1993, Aiken, SC. SRS News Circulation 20,000.
1657. Hazen*, T. C., J. M. Dougherty, M. Enzien, M. M. Franck, C. B. Fliermans, and C. A. Eddy. Invited Seminar Convener. In Situ Bioremediation Via Horizontal Wells. July 1993, San Francisco, CA. Annual Meeting of the American Society of Civil Engineers.
1658. **Hazen, T. C.** Magazine Feature Article. "Team tests trio of technologies" by Steven W. Setzer. June 28 1993, New York, NY. Engineering News Record 230:46-47.
1659. **Hazen, T. C.** Magazine Feature Article. May 1993. U.S. Site Cleanups: A New Approach by I. Kim, G. Parkinson, S. Moore, and D. Kearns. CE 100(5):30.

1660. **Hazen, T. C.** Invited Instructor. Bioremediation Ecological Risk Assessment. June 1993, Fort Collins, CO. Short Course on Ecological Risk Assessment and Management, Department of Fisheries and Wildlife Biology, Colorado State University.
1661. Wear*, J. E., P. C. McKinsey, M. M. Franck, H. G. Findley, M. V. Enzien, C. B. Fliermans, and **T. C. Hazen**. Contributed. A Most-Probable-Number Assay Using BIOLOG-GN Microtiter Plates for the Study of Groundwater Microbial Communities. May 1993, Atlanta, GA. Annual Meeting of the American Society for Microbiology.
1662. Fliermans*, C. B., J. M. Dougherty, M. M. Franck, P. C. McKinsey, and **T. C. Hazen**. Contributed. Immunological Techniques as Tools to Characterize the Subsurface Microbial Community at a Trichloroethylene-Contaminated Site. May 1993, Atlanta, GA. Annual Meeting of the American Society for Microbiology.
1663. Hazen*, T. C., J. M. Dougherty, and C. B. Fliermans. Contributed. In Situ Bioremediation of Chlorinated Solvents by Using Horizontal Wells to Inject Air and Methane. May 1993, Atlanta, GA. Annual Meeting of the American Society for Microbiology.
1664. **Hazen, T. C.** Invited. SRS In Situ Bioremediation Integrated Demonstration. May 1993, Augusta, Georgia, EPA/HSRC & SRTC Technology Development Exchange Meeting.
1665. **Hazen, T. C.** Contributed. Bioremediation Programs at SRS. May 1993, Augusta, Georgia, EPA/HSRC & SRTC Technology Development Exchange Meeting.
1666. **Hazen, T. C.** Contributed. Methanotrophic Bioreactor Demonstrations Proposal. April 1993, Washington, DC Scientific Advisory Board, Strategic Environmental Research and Development Program (DOD-DOE-EPA).
1667. **Hazen, T. C.** Invited Seminar Chairman and Speaker. In Situ Bioremediation of Groundwater. April 1993, San Juan, PR. American Society for Microbiology Conference on Water Quality in the Western Hemisphere.
1668. Edwards*, N. T., B. T. Walton, T. A. Anderson, J. J. Beauchamp, L. W. Cooper, R. J. Luxmoore, E. G. O'Neill, G. S. Sayler, D. C. White, and **T. C. Hazen**. Contributed. The Use of Vegetation for Bioremediation of Surface Soils Contaminated with Trichloroethylene. April 1993, San Diego, CA. In Situ and On-Site Bioreclamation, The Second International Symposium.
1669. Lombard*, K. H., J. Borthen, and **T. C. Hazen**. Contributed. Design and Configuration Management of System Control Components for in situ Methanotrophic Bioremediation of Groundwater and Sediment Contaminated with Chlorinated Hydrocarbons. April 1993, San Diego, CA. In Situ and On-Site Bioreclamation, The Second International Symposium.
1670. Enzien*, M. V., F. W. Picardal, **T. C. Hazen**, and R. G. Arnold. Contributed. Biodegradation of Trichloroethylene and Tetrachloroethylene under Aerobic Conditions with Methane Addition in a Sediment Column. April 1993, San Diego, CA. In Situ and On-Site Bioreclamation, The Second International Symposium.
1671. Dougherty, J. M., C. J. Berry, M. M. Franck, and **T. C. Hazen***. Contributed. Characterization of the Subsurface Microbial Community from a Trichloroethylene Contaminated Site. April 1993, San Diego, CA. In Situ and On-Site Bioreclamation, The Second International Symposium.
1672. Berry*, C. J., **T. C. Hazen**, M. M. Franck, and J. Rossabi. Contributed. Methanotrophic Treatment of Contaminated Well Water Using a Pilot Scale Bioreactor. April 1993, San Diego, CA. In Situ and On-Site Bioreclamation, The Second International Symposium.
1673. Morrissey, C. M., S. E. Herbes, A. V. Palumbo*, T. J. Phelps, and **T. C. Hazen**. Invited Seminar. Use of Laboratory Soil Columns to Optimize in situ Biotransformation of Tetrachloroethylene. April 1993, San Diego, CA. In Situ and On-Site Bioreclamation, The Second International Symposium.
1674. Fliermans*, C. B., J. M. Dougherty, M. M. Franck, P. C. McKinsey and **T. C. Hazen**. Invited Seminar. Immunological Techniques as Tools to Characterize the Subsurface Microbial Community at a Trichloroethylene Contaminated Site. April 1993, San Diego, CA. In Situ and On-Site Bioreclamation, The Second International Symposium.
1675. Hazen*, T. C., J. M. Dougherty, C. B. Fliermans, and B. B. Looney. Invited Seminar. Bioremediation of Soil and Groundwater at a Chlorinated Solvent Contaminated Site using Horizontal Wells to Inject Air. April 1993, San Diego, CA. In Situ and On-Site Bioreclamation, The Second International Symposium.
1676. Hazen*, T. C., J. M. Dougherty, and C. B. Fliermans. Invited Seminar. DOE/SRS Integrated Demonstration: In Situ Bioremediation of Soil and Groundwater at a Chlorinated Solvent Contaminated Site using Horizontal Wells to Inject Air and Methane. April 1993, San Diego, CA. In Situ and On-Site Bioreclamation, The Second International Symposium.
1677. **Hazen, T. C.** Invited Seminar. Bioremediation Ecological Risk Assessment. March 1993, Fort Collins, CO. Department of Fisheries and Wildlife Biology, Colorado State University.
1678. **Hazen, T. C.** Invited Seminar. Bioreactors and Vegetation Enhancement of Bioremediation of Chlorinated Solvents. March 1993, Houston, TX. DOE/Office of Technology Transfer Investigators Review.
1679. **Hazen, T. C.** Invited Seminar. In Situ Bioremediation of Chlorinated Solvents using Injection of air/Methane via Horizontal Wells. February 25, 1993, Augusta, GA. Technology Transfer Seminar for Industry.

1680. **Hazen, T. C.** Invited Seminar. In Situ Bioremediation of Chlorinated Solvents using Injection of air/Methane via Horizontal Wells. February 23, 1993, Augusta, GA. Technology Transfer Seminar for Industry.
1681. **Hazen, T. C.** Invited Seminar. The Environment and Environmental Scientists. February 1993, Augusta, GA. Warren Road Elementary School.
1682. **Hazen, T. C.** Invited Seminar. Bioremediation Demonstrations at SRS. February 1993, Pittsburgh, PA. Westinghouse Technology Transfer Council.
1683. **Hazen, T. C.** Invited Seminar. In Situ Bioremediation of Chlorinated Solvents using Injection of air/Methane via Horizontal Wells. January 1993, Washington, DC. Department of Energy, Office of Technology Development.
1684. **Hazen, T. C.** Invited Seminar. Bioremediation at SRS. January 1993, San Antonio, TX. American Academy of Microbiology, Colloquia on Field Research in Bioremediation.
1685. **Hazen, T. C.** Invited Seminar. In Situ Bioremediation of Chlorinated Solvents using Injection of air/Methane via Horizontal Wells. December 1992, Columbia, SC. South Carolina Department of Health and Environmental Control.
1686. **Hazen, T. C.** Invited Seminar. In Situ Bioremediation of Sanitary Landfills. November 1992, Aiken, SC. Westinghouse Savannah River Company Environmental Restoration Department.
1687. **Hazen, T. C.** Invited Seminar. In Situ Bioremediation of Chlorinated Solvents using Injection of air/Methane via Horizontal Wells. November 1992, Houston, TX. Department of Environmental Engineering, Rice University.
1688. Hazen*, T. C., J. M. Dougherty, M. Enzien, M. M. Franck, C. B. Fliermans, C. A. Eddy, and K. H. Lombard. Contributed. DOE/SRS Integrated Demonstration: In Situ Bioremediation of Soil and Groundwater. November 1992, Pleasanton, CA. DOE Technology Information Exchange: Remediation.
1689. **Hazen, T. C.** Invited Seminar. Environmental Research. October 1992, Augusta, GA. Richmond County Schools Education Improvement Program.
1690. **Hazen, T. C.** Invited Seminar. Science Fair Workshop for Wheeless Road Elementary School. October 1992, Augusta, GA. Group Leader.
1691. Looney*, B. B., D. S. Kaback, **T. C. Hazen**, and J. C. Corey. Contributed. Environmental restoration using horizontal wells: A field demonstration. September 1992, Atlanta, GA. American Chemical Society Symposium on Emerging Technologies for Hazardous Waste Management.
1692. **Hazen, T. C.** Invited Symposium Speaker. Monitoring In Situ Bioremediation. September 1992, Niagara-on-the-Lake, Canada. International Symposium on In Situ Bioremediation'92 sponsored by Environment Canada.
1693. **Hazen, T. C.** Invited Symposium Speaker. In Situ Bioremediation Demonstrations at SRS. September 1992, Grand Rapids, MI. International Symposium on the Implementation of Biotechnology in Industrial Waste Treatment and Bioremediation. Sponsored by Michigan Biotechnical Institute.
1694. **Hazen, T. C.** Invited Seminar. In Situ Bioremediation of Chlorinated Solvents using Injection of air/Methane via Horizontal Wells. September 1992, Clemson, SC. Department of Biological Sciences, Clemson University.
1695. **Hazen, T. C.** Magazine Feature Article. "SRS Pitches Cleanup Technology; confers Award on 151". September 1992, Aiken, SC. Technology Transfer Report pg. 11.
1696. **Hazen, T. C.** Newspaper Article and Interview. "Bacteria Cleanup SRS". Wednesday September 2 1992, Aiken, SC. Aiken Standard Circulation: 18,000.
1697. **Hazen, T. C.** Newspaper Article. "Bacteria could aid waste cleanup". Wednesday September 2 1992, Charlotte, NC. Charlotte Observer pg 5C.
1698. **Hazen, T. C.** Newspaper Article and Interview. "Bacteria Topic of Seminar" by S. D. Hale. Wednesday September 2 1992, Augusta, GA. Augusta Chronicle.
1699. **Hazen, T. C.** TV Interview. Groundwater Cleanup Technology. September 1 1992, Augusta, GA. 6 PM and 11 PM News Channel 26.
1700. **Hazen, T. C.** TV Interview. Groundwater Cleanup Technology. September 1 1992, Augusta, GA. 6 PM and 11 PM News Channel 12.
1701. **Hazen, T. C.** Invited. SRS Bioremediation Technology Licensing Symposium. September 1992, Augusta, GA. SRS Technology Transfer Symposium.
1702. **Hazen, T. C.** Invited Seminar. In Situ Bioremediation Demonstrations at SRS. August 1992, Pittsburgh, PA. Westinghouse Science and Technology Center.
1703. Hazen*, T. C., J. M. Dougherty, C. B. Fliermans, and B. B. Looney. Invited Symposium Speaker. Full Scale Underground Injection of Air, Methane, and Other Gases via Horizontal Wells for In Situ Bioremediation of Chlorinated Solvent Contaminated Ground Water and Soil. August 1992, Minneapolis, MN. American Institute of Chemical Engineers annual meeting.
1704. **Hazen, T. C.** Newspaper Article and Interview. "Growth Amid the Ruins" by Charles Pope. June 28 1992, Columbia, SC. Sunday Feature (front page) The State Note: Sunday Circulation: 171,200.
1705. **Hazen, T. C.** Newsletter Article and Interview. Breakthrough clean water technologies demonstrated at SRS. Spring 1992, Aiken, SC. SRS Environmental Bulletin 3(6):4.

1706. **Hazen, T. C.** Newspaper Article and Interview. "Cleaner Groundwater Is Subject of SRS Research". Thursday April 9 1992, Aiken, SC. Aiken Standard Circulation: 18,000.
1707. Hazen*, T. C., J. M. Dougherty, and B. B. Looney. Contributed. Stimulation of Ground Water and Sediment Communities at a Trichloroethylene Contaminated Site. May 1992, New Orleans, LA. American Society for Microbiology Annual Meeting.
1708. Enzien*, M., F. Picardal, **T. C. Hazen**, and B. Arnold. Contributed. Effects of TCE and methane exposure on microbial community dynamics in a sediment column. May 1992, New Orleans, LA. American Society for Microbiology Annual Meeting.
1709. Dougherty*, J. M., M. M. Franck, C. B. Fliermans, and **T. C. Hazen**. Contributed. Characterization of the Subsurface Microbial community from a Trichloroethylene Contaminated Site. May 1992, New Orleans, LA. American Society for Microbiology Annual Meeting.
1710. **Hazen, T. C.** Invited Symposium Speaker. In Situ Bioremediation Demonstrations at SRS. May 1992, New Orleans, LA. American Society for Microbiology Annual Meeting.
1711. **Hazen, T. C.** Workshop Chairman. Emerging Technologies in Bioremediation. May 1992, New Orleans, LA. American Society for Microbiology Training Workshop.
1712. **Hazen, T. C.** Interview. Cleaner Groundwater is Subject of SRS Research. Article for Aiken Standard newspaper (circulation 18,000). April 9, 1992.
1713. **Hazen, T. C.** Invited Seminar and Discussions. Bioremediation of DOE wastes, lessons from oil-contaminated soil. March 1992, Golden, CO. Rocky Flats EG&G Environmental Restoration Department.
1714. McCabe, D. J., A. W. Wiggins, M. R. Poirier, and **T. C. Hazen**. Contributed. Biofouling of Microfilter at the Savannah River Site F/H-Area Effluent Treatment Facility. March 1992, Tucson, AZ. Waste Management '92.
1715. **Hazen, T. C.** Invited Seminar. Deep Subsurface Microbiology - Traveling Lecture. February 1992, St. Petersburg, FL. Eckerd College.
1716. Fliermans*, C. B., **T. C. Hazen**, and R. L. Tyndall. Contributed. Decade of Monitoring Legionella pneumophila in Southeaster Cooling Towers. January 1992, Orlando, FL. Fourth International Symposium on Legionella.
1717. Fliermans*, C. B., **T. C. Hazen**, and R. L. Tyndall. Contributed. Modified Direct Fluorescent Antibody Technique as a Monitoring Tool for Legionella. January 1992, Orlando, FL. Fourth International Symposium on Legionella.
1718. **Hazen, T. C.** Invited Seminar. SRS Integrated Demonstration: Bioremediation Tasks. January 1992, New Orleans, LA. Gas Research Institute Environmental Advisors annual meeting.
1719. **Hazen, T. C.** Invited Seminar/Convener. SRS Integrated Demonstration: Bioremediation Tasks. December 1991, Colorado Springs, CO. Fourth International Institute for Gas Technology Symposium on Gas, Oil, Coal and Environmental Biotechnology.
1720. **Hazen, T. C.** Invited Seminar. Integrated Demonstration Project Bioremediation Tasks for FY92. November 1991, Aiken, SC. WSRC Environmental Restoration Department Special Seminar.
1721. **Hazen, T. C.** Invited Seminar. In-Situ Bioremediation of SRS Waste Sites. November 1991, Augusta, GA. US Department of Energy, Office of Environmental Restoration Technology Information Exchange Workshop.
1722. **Hazen, T. C.** Invited Seminar. Ex-Situ Bioremediation of SRS Waste Sites. November 1991, Augusta, GA. US Department of Energy, Office of Environmental Restoration Technology Information Exchange Workshop.
1723. **Hazen, T. C.** and C. Berry*. Invited Poster. Bioreactors. November 1991, Augusta, GA. US Department of Energy, Office of Environmental Restoration Technology Information Exchange Workshop.
1724. **Hazen, T. C.** Invited Seminar. Bioremediation at SRS. November 1991, Atlanta, GA. Annual Meeting of the Southeastern Society for Microbiology.
1725. Mills*, G. L., T. Savage, T. Hall, and **T. C. Hazen**. Contributed. Characterization of Diesel Oil Components in a Shallow Aquifer Contaminant Plume. November 1991, Washington, DC. Annual meeting of the Society of Environmental Toxicology and Contamination.
1726. Hall*, T., T. Savage, G. L. Mills, and **T. C. Hazen**. Contributed. Determination of petroleum hydrocarbons in a contaminated shallow aquifer using chromarodiatroscan TLC-FID. November 1991, Washington, DC. Annual meeting of the Society of Environmental Toxicology and Contamination.
1727. **Hazen, T. C.** Invited Seminar. Bioremediation of SRS waste sites. October 1991, Pensacola, FL. Department of Biology, University of West Florida.
1728. **Hazen, T. C.** Invited Keynote Speaker. Bioremediation/Biotechnology. October 1991, San Juan, PR. Puerto Rico Conference on Advanced Technology/ InterAmerican University.
1729. **Hazen, T. C.** Invited Seminar. Technology Demonstration at the Miscellaneous Chemical Basin. September 1991, Aiken, SC. Monthly SRS-EPA-SCDHEC Federal Facilities Agreement Meeting.
1730. **Hazen, T. C.** Magazine Interview. Bioremediation at SRS: Interview and cover picture "DOE this Month". August 1991, Washington, DC. U. S. Department of Energy.

1731. Siler*, J. L., D. J. McCabe, and **T. C. Hazen**. Contributed. Fouling of ceramic filters and thin-film composite reverse osmosis membranes by inorganics and bacteria. August 1991, Chicago, IL. International Congress on Membranes and Membrane Processes.
1732. Siler*, J. L., D. J. McCabe, and **T. C. Hazen**. Contributed. Fouling of ceramic filters and thin-film composite reverse osmosis membranes by inorganic and bacterial constituents. August 1991, Pittsburgh, PA. Annual meeting of American Institute of Chemical Engineers.
1733. **Hazen, T. C.** Invited Seminar. Bioremediation at SRS. July 1991, Cincinnati, OH. U. S. Environmental Protection Agency, Office of Research and Development.
1734. **Hazen, T. C.**, and C. B. Fliermans. Invited. Bioremediation Workshop. June 1991, Aiken, SC. WSRC-DOE Environmental Restoration Division.
1735. **Hazen, T. C.** Invited. Bioremediation at SRS. June 1991, Washington, DC. DOE-OTD Midyear Program Review.
1736. Kaback*, D. S., B. B. Looney, C. A. Eddy, and **T. C. Hazen**. Contributed. May 1991, Las Vegas, NV. National Water Well Association Outdoor Action Conference.
1737. **Hazen, T. C.** Invited Seminar. TCE/PCE Bioremediation at SRS. May 1991, Tucson, AZ. Department of Civil Engineering. University of Arizona.
1738. **Hazen, T. C.** Interview. Bioremediation at SRS. March 1991, Aiken, SC. New York Times - Kieth Schnieder.
1739. **Hazen, T. C.** Invited Workshop. Outdoor Safety. March 1991, Augusta, GA. Warren Road Elementary School.
1740. **Hazen, T. C.** Invited Seminar. Bioremediation of contaminated waste sites at the Savannah River Site. February 1991, Charlottesville, VA. Department of Chemical Engineering, University of Virginia.
1741. **Hazen, T. C.** Invited Seminar. Bioremediation of contaminated sites at the Savannah River Site. February 1991, Augusta, GA. Augusta College, University of Georgia.
1742. **Hazen, T. C.** Invited Plenary Speaker. Bioremediation: Teaching Bacteria to Destroy Toxic Chemicals in Contaminated Environments or a Natural Solution to Pollution. February 1991, San Juan, PR. Fifteenth Congress of Scientific Investigation, sponsored by InterAmerican University.
1743. **Hazen, T. C.** Invited Seminar. Bioremediation of toxic waste sites at the Savannah River Site. January 1991, Aiken, SC. Savannah River Ecology Laboratory, University of Georgia.
1744. **Hazen, T. C.** Invited workshop. Phase 1 biological report and proposed activity of Phase 2 of the DOE Integrated Demonstration of TCE remediation at the Savannah River Site. January 1991, Aiken, SC. Technical meeting of the DOE Integrated Demonstration Project at SRS.
1745. **Hazen, T. C.** Invited Seminar. Bioremediation of toxic waste sites at the Savannah River Site. January 1991, Wilmington, NC. Department of Biology, University of North Carolina at Wilmington.
1746. **Hazen, T. C.** Invited Seminar. Bioremediation of toxic waste sites at the Savannah River Site. January 1991, Chapel Hill, NC. Department of Environmental Engineering and Public Health, University of North Carolina at Chapel Hill.
1747. **Hazen, T. C.** Invited Seminar. Bioreactors: a new method for cleaning chemical-contaminated groundwater using soil bacteria. January 1991, Aiken, SC. Meeting of South Carolina Research and University Educational Foundation Steering Committee.
1748. **Hazen, T. C.** Invited Seminar. Proposed sOILs Facility for bioremediation of petroleum contaminated soil at the Savannah River Site. December 1990, Columbia, SC. Groundwater Division of the South Carolina Department of Health and Environmental Control.
1749. **Hazen, T. C.** Invited Workshop. How clean is clean enough? GRI/IGT Workshop on Environmental Biotechnology. December 1990, New Orleans, LA. Third International IGT Symposium on Gas, Oil, Coal and Environmental Biotechnology.
1750. **Hazen, T. C.** Invited Seminar. Phase 1 biological report and proposed activity of Phase 2 of the DOE Integrated Demonstration of TCE remediation at the Savannah River Site. November 1990, Columbia, SC. Groundwater Division of the South Carolina Department of Health and Environmental Control.
1751. **Hazen, T. C.** Invited poster: Bioreactors: a new method for cleaning chemical-contaminated groundwater using soil bacteria. November 1990, Aiken, SC. Boy Scout Jamboree of the Central Savannah River Council.
1752. **Hazen, T. C.** Invited Seminar. Bioremediation of toxic waste sites at the Savannah River Site. November 1990, Livermore, CA. Lawrence Livermore National Laboratory.
1753. **Hazen, T. C.** Invited Seminar. The SRS sOILs Facility, a petroleum contaminated soil bioremediation facility. October 1990, Augusta, GA. Quarterly meeting of the Region 4 EPA/SCDHEC/SRS.
1754. **Hazen, T. C.** Invited Seminar. The potential for bioremediation of PCBs in soil. October 1990, Aiken, SC. Workshop of the Westinghouse Electric Bloomington Project.
1755. **Hazen, T. C.** Videotape Interview. Phase 2 of the Integrated Demonstration Program for bioremediation of trichloroethylene in groundwater. October 1990, Aiken, SC. WSRC Video Services Tape.
1756. **Hazen, T. C.** Invited Seminar. Bioreactors for the degradation of trichloroethylene in groundwater. August 1990, Aiken, SC. DOE Office of Technology Development Integrated Demonstration Meeting for Program Managers.

1757. **Hazen, T. C.**, and C. Wolf. TV Interview. Innovative Technologies at SRS for Environmental Cleanup. July 23 1990, Augusta, GA. Invited Guest on Top of the Day Show, 12-12:30, channel 26 WAGT.
1758. **Hazen, T. C.** Invited Seminar. Environmental Biotechnology at SRS. July 1990, Aiken, SC. Scientific Ecology Group, Division of Westinghouse Electric Company.
1759. **Hazen, T. C.** Invited Seminar. Environmental Biotechnology at SRS. June 1990, Aiken, SC. Geotechnical Advisory Committee meeting of the Savannah River Laboratory, Westinghouse Savannah River Company.
1760. **Hazen, T. C.** Invited Seminar. Biotechnology as a Career. June 1990, Aiken, SC. NSF-Ruth Patrick Science Center Summer High School Scholar Program.
1761. **Hazen, T. C.** Invited Seminar. Methanotrophic Degradation of Trichloroethylene at SRS. June 1990, Chicago, IL. Annual program review Gas Research Institute and Savannah River Laboratory.
1762. **Hazen, T. C.** Invited Seminar. Environmental Biotechnology at SRS. June 1990, Aiken, SC. Semi-Annual meeting of the Westinghouse Savannah River Company Board of Directors.
1763. **Hazen, T. C.** Newspaper Article. SRS worker honored for research. Friday May 11 1990, Augusta, GA. The Augusta Chronicle pg 18A
1764. **Hazen, T. C.** Newspaper Article. SRL's Dr. Terry Hazen to receive Gold Corporate George Westinghouse Signature Award of Excellence. May 3 1990, Aiken, SC. SRS NEWS pg 3.
1765. King*, D. L., J. E. Wear, and **T. C. Hazen**. Contributed. Chemotactic Behavior of Soil Bacteria to Benzene, Toluene and Xylene. May 1990, Anaheim, CA. Annual meeting of the American Society for Microbiology.
1766. Wear*, J. E., and **T. C. Hazen**. Contributed. Distribution and Abundance of Bacteria from Pristine and Trichloroethylene Contaminated Groundwater. May 1990, Anaheim, CA. Annual meeting of the American Society for Microbiology.
1767. **Hazen, T. C.** Invited Seminar. International Symposium on Environmental Biotechnology. April 1990, Braunschweig, West Germany. EERO - GBF International Symposium Environmental Biotechnology.
1768. **Hazen, T. C.** Invited Seminar. Bioremediation of toxic waste sites at the Savannah River Site. April 1990, Idaho Falls, ID. DOE Review of Environmental Biotechnology.
1769. **Hazen, T. C.** Invited Seminar. Bioremediation of toxic waste sites at the Savannah River Site. March 1990, Nashville, TN. Department of Environmental Engineering, Vanderbilt University
1770. **Hazen, T. C.** Invited Seminar. Bioremediation of toxic waste sites at the Savannah River Site. March 1990, Logan, UT. Department of Environmental Engineering, Utah State University
1771. **Hazen, T. C.** Invited Seminar. Bioremediation of toxic waste sites at the Savannah River Site. March 1990, Idaho Falls, ID. Idaho National Engineering Laboratory, EG&G.
1772. **Hazen, T. C.** Invited Seminar. Survival of indicators and pathogens in tropical waters. March 1990, Melbourne, FL. Department of Biological Sciences, Florida Institute of Technology.
1773. **Hazen, T. C.** Invited Seminar. Bioremediation of toxic waste sites at the Savannah River Site. February 1990, Washington, DC. U. S. Environmental Protection Agency Headquarters, EPA-DOE committee on environmental restoration.
1774. **Hazen, T. C.** Invited videotape. Remediation of groundwater using biological methods. February 1990, Washington, DC. U. S. Department of Energy, SciTech RDDT&E prioritization.
1775. **Hazen, T. C.** Invited Seminar. Microbiology of the Deep Terrestrial Subsurface. February 1990, Athens, GA. Department of Microbiology, University of Georgia.
1776. **Hazen, T. C.** Invited Seminar. Bioremediation, a natural solution to pollution. February 1990, Athens, GA. Department of Microbiology, University of Georgia.
1777. **Hazen, T. C.** Invited Seminar. HAZWRAP research/demonstration in TCE bioremediation at the Savannah River Site. February 1990, Atlanta, GA. U. S. Department of Energy (HAZWRAP) and U. S. Air Force Technology Transfer Symposium.
1778. **Hazen, T. C.** Invited Seminar. Bioremediation at DOE sites, cooperative research programs. January 1990, Oak Ridge, TN. U. S. Department of Energy and U. S. Environmental Protection Agency Workshop.
1779. Jiménez, L., G. López de Victoria, J. Wear, C. B. Fliermans, and **T. C. Hazen**. Contributed. Molecular analysis of deep subsurface bacteria. January 1990, Orlando, FL. International Symposium on Microbiology of the Deep Terrestrial Subsurface.
1780. **Hazen, T. C.**, L. Jiménez, and S. Pfiffner. Contributed. Isolation of microbial DNA from groundwater environments. January 1990, Orlando, FL. International Symposium on Microbiology of the Deep Terrestrial Subsurface.
1781. **Hazen, T. C.** Invited Seminar. Deep subsurface bacterial responses to contaminants. January 1990, Orlando, FL. International Symposium on Microbiology of the Deep Terrestrial Subsurface.
1782. **Hazen, T. C.** Co-Convener. Contaminated Environments, Plenary Session 7. January 1990, Orlando, FL. International Symposium on Microbiology of the Deep Terrestrial Subsurface.

1783. **Hazen, T. C.** Co-Chairman and Co-Organizer. International Symposium on Microbiology of the Deep Terrestrial Subsurface. January 1990, Orlando, FL. Westinghouse Savannah River Company and U. S. Department of Energy.
1784. **Hazen, T. C.** Invited Seminar. Bioremediation to toxic waste sites at Savannah River Site. December 1989, New Orleans, LA. Second International Symposium on gas, oil, and coal biotechnology, Institute of Gas Technology.
1785. **Hazen, T. C.** Invited Seminar. Bioremediation, a natural solution to pollution. December 1989, Augusta, GA. Central Savannah River Area Sigma Xi Chapter.
1786. **Hazen, T. C.** Invited Seminar. SRL-GRI cooperative R and D for demonstration of a methanotrophic bioreactor for degradation of TCE and PCE in groundwater. October 1989, Chicago, IL. Annual meeting of investigators in the Biotechnology Program of the Gas Research Institute.
1787. **Hazen, T. C.** Invited Seminar. Microbiology of the Deep Terrestrial Subsurface. October 1989, Charlotte, NC. Department of Biology, University of North Carolina at Charlotte.
1788. **Hazen, T. C.** Invited Seminar. Microbiology of the Deep Terrestrial Subsurface. September 1989, Dayton, OH. Department of Biology, University of Dayton.
1789. **Hazen, T. C.** Newspaper Article. SRL researcher on the go by Sherley S. Bonner. September 1989, Aiken, SC. SRS News
1790. **Hazen, T. C.** Invited Seminar. Survival and Activity of Indicators and Pathogens in Water. August 1989, Charleston, SC. National Marine Fisheries Laboratory of Charleston.
1791. **Hazen, T. C.** Invited Convener. Symposium: Deep Terrestrial Subsurface Microbiology. August 1989, Seattle, Washington. Annual meeting of the American Society of Industrial Microbiologists.
1792. **Hazen, T. C.** Invited Participant and Speaker. Colloquia: Indicators and Pathogens in Tropical Waters. July 1989, Townsville, Australia. International Colloquia on Water Quality in the Humid Tropics UNESCO
1793. **Hazen, T. C.** Invited Seminar. What do Fecal Coliforms Indicate in Tropical Waters? July 1989, Honolulu, HI. Water Resources Institute, University of Hawaii.
1794. **Hazen, T. C.** Invited Seminar. Deep Terrestrial Subsurface Microbiology. July 1989, Honolulu, HI. Department of Microbiology, University of Hawaii.
1795. **Hazen, T. C.** Invited Seminar. Biotechnology as a Career. June 1989, Aiken, SC. Ruth Patrick Science Center, Summer Students.
1796. **Hazen, T. C.** Invited Seminar. Ethics of Genetic Engineering. June 1989, Aiken, SC. Ruth Patrick Science Center, Summer Students.
1797. **Hazen, T. C.** Work Review. Central Shops Diesel Storage Facility Bioremediation Feasibility Status Report. June 1989, Aiken, SC. Savannah River Laboratory.
1798. **Hazen, T. C.** Invited Seminar. Microbiology of the Deep Terrestrial Subsurface. June 1989, Columbia, SC. South Carolina Water Resources Commission.
1799. **Hazen, T. C.** Invited. Central Shops Diesel Storage Facility Bioremediation Feasibility Status Report. June 1989, Aiken, SC. DOE Groundwater Update. Savannah River Laboratory.
1800. López de Victoria*, L., L. Jiménez, **T. C. Hazen**, and C. B. Fliermans. Contributed. Chemotactic behavior of deep terrestrial subsurface bacteria. May 1989, New Orleans, LA. Annual meeting of the American Society for Microbiology.
1801. Jiménez*, L., G. López de Victoria, **T. C. Hazen**, and C. B. Fliermans. Contributed. Molecular characterization of heterotrophic bacterial communities from deep terrestrial subsurface environments. May 1989, New Orleans, LA. Annual meeting of the American Society for Microbiology.
1802. Soto*, J. M., and **T. C. Hazen**. Contributed. Total coliforms, fecal coliforms, and fecal streptococci as indicators of Public water supply quality in the tropics. May 1989, New Orleans, LA. Annual meeting of the American Society for Microbiology.
1803. **Hazen, T. C.** Television Interview. Biodegradation of Trichloroethylene. May 1989, New Orleans, LA. Invited Guest. ASM update Annual meeting of the American Society for Microbiology.
1804. **Hazen, T. C.** Symposium Convener: Biodegradation of Trichloroethylene. May 1989, New Orleans, LA. Annual meeting of the American Society for Microbiology.
1805. **Hazen, T. C.** Symposium Convener. Indicators and Pathogens in Tropical Waters. May 1989, New Orleans, LA. Annual meeting of the American Society for Microbiology.
1806. **Hazen, T. C.** Invited Seminar. Microbiology of the Deep Terrestrial Subsurface. April 1989, Atlanta, GA. Department of Biology, Georgia State University.
1807. **Hazen, T. C.** Invited Seminar. Bioremediation of Toxic Waste Sites. April 1989, Atlanta, GA. Department of Biology, Georgia Institute of Technology.
1808. **Hazen, T. C.** Invited Seminar. Bioremediation of Toxic Waste Sites. March 1989, Davidson, NC. Department of Biology, Davidson College.

1809. **Hazen, T. C.** Invited Seminar. Bioremediation of Toxic Waste Sites. February 1989, San Juan, PR. Sigma Xi of Puerto Rico.
1810. **Hazen, T. C.** Contributed. Deep Probe investigators meeting progress. January 1989, Tallahassee, FL. U. S. Department of Energy and Florida State University.
1811. Fliermans*, C. B., H. W. Bledsoe, L. Jiménez, **T. C. Hazen**, T. J. Phelps, and F. J. Wobber. Contributed. Microbiology and geological comparisons of the terrestrial deep subsurface. December 1988, San Francisco, CA. Annual meeting of the American Geophysical Union.
1812. **Hazen, T. C.**, L. Jiménez, G. López de Victoria, and C. B. Fliermans. Contributed. Comparison of Bacteria from Water and Sediment Cores in the Terrestrial Subsurface. December 1988, Washington, DC. Annual meeting of the Hazardous Materials Control Research Institute.
1813. **Hazen, T. C.** Videotape Interview. Life in the deep terrestrial subsurface. November 1988, Aiken, SC. SRP Update. DuPont Video Services Tape 810-1319.
1814. **Hazen, T. C.** Invited Seminar. Life in the deep terrestrial subsurface. October 1988, Troy, NY. Rennsalaer Polytechnic Institute.
1815. **Hazen, T. C.**, C. B. Fliermans, T. Phelps, and T. Griffin. Radio Interview. Life in the deep terrestrial subsurface. October 1988, NY. Invited Guest on All Things Considered. National Public Radio.
1816. **Hazen, T. C.** Invited Seminar. Survival of indicators and pathogens in natural environments. September 1988, Bozeman, MT. Northwest regional meeting of the American Society of Microbiology.
1817. **Hazen, T. C.** Invited Convener. Indicators in Tropical Waters. August 1988, Banff, Alberta, Canada. First Biennial Symposium on Water Quality.
1818. Bermúdez, M., and **T. C. Hazen**. Contributed. Phenotypic and genotypic comparison of *Escherichia coli* from pristine tropical waters. May 1988, Miami, FL. Annual meeting of the American Society for Microbiology.
1819. López de Victoria, G., L. Jiménez, I. Muñiz, **T. C. Hazen**, and C. B. Fliermans. Contributed. Comparison of Bacteria from Water and Sediment Cores in the Terrestrial Subsurface. May 1988, Miami, FL. Annual meeting of the American Society for Microbiology.
1820. Jiménez, L., I. Muñiz, and **T. C. Hazen**. Contributed. Survival and Activity of Salmonella typhimurium and *Escherichia coli* in Tropical Freshwater. May 1988, Miami, FL. Annual meeting of the American Society for Microbiology.
1821. **Hazen, T. C.** Invited Seminar. What do Fecal Coliforms Indicate in Tropical Waters? February 1988, Winston-Salem, NC. Wake Forest University.
1822. **Hazen, T. C.** Radio Interview. Survival of Fecal Coliforms in seawater, implications for the Scarborough, England outfall. February 12, 1988, Yorkshire, England. Yorkshire British Broadcast Company Station.
1823. **Hazen, T. C.** Invited Seminar. Life in the deep terrestrial subsurface. December 1987, San Juan, PR. Sigma Xi Club of San Juan.
1824. **Hazen, T. C.** Invited Workshop. Computer Data Acquisition and Transfer, Modem and Instrument Interfacing. March 1987, San Juan, PR. Compu-Campus IV - Turabo University.
1825. Rivera, S., T. Lugo, and **T. C. Hazen**. Contributed. Autecology of *Vibrio vulnificus* and *Vibrio parahaemolyticus* in tropical waters. March 1987, Atlanta, GA. Annual meeting of the American Society for Microbiology.
1826. Rojas, Y. A., I. Muñiz, and **T. C. Hazen**. Contributed. Survival of *Vibrio cholerae* in treated and untreated rum distillery effluents. March 1987, Atlanta, GA. Annual meeting of the American Society for Microbiology.
1827. Negrón, A., I. Pérez, and **T. C. Hazen**. Contributed. Isolation of *Legionella* species from cooling towers in the tropics. March 1987, Atlanta, GA. Annual meeting of the American Society for Microbiology.
1828. Jiménez, L., W. E. Arias, T. Lugo, and **T. C. Hazen**. Contributed. Densities and physiological activity of planktonic and epilithic bacteria in tropical freshwater environments. March 1987, Atlanta, GA. Annual meeting of the American Society for Microbiology.
1829. Santo Domingo, J., F. A. Fuentes, and **T. C. Hazen**. Contributed. Comparison of the in situ survival rates and activity of *Escherichia coli* and *Streptococcus faecalis* in tropical marine waters. March 1987, Atlanta, GA. Annual meeting of the American Society for Microbiology.
1830. **Hazen, T. C.** Invited Seminar. Microbial indicators of water quality: Reassessing the standards. February 1987, Aiken, SC. Savannah River Laboratory, DuPont.
1831. **Hazen, T. C.**, G. A. Toranzos, and L. Jiménez. Invited Seminar. Workshop on detecting *Salmonella* spp. in the environment. February 1987, Dorado, PR. Puerto Rico Department of Health.
1832. **Hazen, T. C.** Invited Seminar. Computer usage in the laboratory, a faculty workshop. January 1987, Santurce, PR. Sacred Heart University MBS Program.
1833. **Hazen, T. C.** Invited Seminar. Water quality in Puerto Rico. November 1986, Río Piedras, PR. BetaBetaBeta, Biology Week, University of Puerto Rico.
1834. **Hazen, T. C.** Invited Seminar. Computer use in the sciences. November 1986, Santurce, PR. Honor Students Symposium, Sacred Heart University.

1835. **Hazen, T. C.** Invited Seminar. Drinking water microbiology. October 1986, Humacao, PR. Puerto Rico Society of Microbiologists.
1836. Television Interview: Tropical Water Quality Research in Puerto Rico. October 1986, Atlanta, GA. Invited Guest on Science and Technology Reports. CNN News.
1837. Arias, W. E., and **T. C. Hazen**. Contributed. Epilithic communities in a tropical rain forest watershed. August 1986, Ljubljana, Yugoslavia. Fourth International Symposium on Microbial Ecology.
1838. **Hazen, T. C.** Invited Convener. Human Pathogens in the Environment. August 1986, Ljubljana, Yugoslavia. Fourth International Symposium on Microbial Ecology.
1839. **Hazen, T. C.** Invited Seminar. Survival and distribution of pathogens in tropical marine waters and seafood. June 1986, Parguera, PR. Regional AAAS Symposium "Marine Industries: Promising Future to Old and New Ventures."
1840. **Hazen, T. C.** Invited Seminar. Pathogens and their indicators in the waters and shellfish of Puerto Rico. May 1986, San Juan, PR. Natural History Society of Puerto Rico.
1841. **Hazen, T. C.** Newspaper Article. Biologist: cleanup may not cut freshwater bacteria by Rolf Olsen, Interview and picture. Monday June 2 1986, San Juan, PR. The San Juan Star page 2.
1842. **Hazen, T. C.** Invited Seminar. Microbial Ecology of Tropical Waters. May 1986, Mayagüez, PR. Industrial Microbiology Symposium, University of Puerto Rico.
1843. **Hazen, T. C.** Invited Seminar. Genetically - Engineered Microbes in the Environment. May 1986, Río Piedras, PR. BetaBetaBeta, Biology Week, University of Puerto Rico.
1844. **Hazen, T. C.** Invited Instructor. Genetically - Engineered Bacteria in the Environment. April 1986, Río Piedras, PR. Special Topics in Modern Biology, University of Puerto Rico.
1845. Gómez, E., Y. A. Rojas, and **T. C. Hazen**. Contributed. Distribution of *Vibrio cholerae* in rum effluents. April 1986, Río Piedras, PR. Annual Junior Technical meeting of the American Chemical Society of Puerto Rico.
1846. Rojas, Y. A., and **T. C. Hazen**. Contributed. Bacterial communities from treated and untreated rum distillery effluents. April 1986, Río Piedras, PR. Annual Junior Technical meeting of the American Chemical Society of Puerto Rico.
1847. **Hazen, T. C.** Invited Seminar. Survival and activity of pathogens and their indicators in tropical waters. April 1986, Humacao, PR. Marine Science Program, Humacao University.
1848. **Hazen, T. C.** Invited Instructor. Microbial Ecology of Tropical Waters. April 9-11 1986, San Juan, PR. Chautauqua Short Course, NSF - Chautauqua Field Centers.
1849. López de Cardona, I., M. Bermúdez*, and **T. C. Hazen**. Contributed. Survival of poliovirus in a tropical lagoon. March 1986, Washington, DC. Annual meeting of the American Society for Microbiology.
1850. Rojas, Y. A., A. Negrón, W. Arias, and **T. C. Hazen**. Contributed. Characterization of bacterial communities from treated and untreated rum distillery effluents. March 1986, Washington, DC. Annual meeting of the American Society for Microbiology.
1851. **Hazen, T. C.** Invited Seminar. Genetically - Engineered Bacteria in the Environment. February 1986, Río Piedras, PR. University Honors Program, University of Puerto Rico.
1852. **Hazen, T. C.** Invited Seminar. Aquatic Microbial Ecology. January 1986, San Juan, PR. School of Medicine, University of Puerto Rico.
1853. López de Cardona, I., M. Bermúdez*, and **T. C. Hazen**. Contributed. Survival of poliovirus in a tropical lagoon. December 1985, San Juan, PR. Semi-annual meeting of the Puerto Rico Society of Microbiologists.
1854. Santiago*, J., and **T. C. Hazen**. Contributed. Comparison of four membrane filter methods and MPN for enumeration of fecal coliforms in tropical waters. December 1985, San Juan, PR. Semi-annual meeting of the Puerto Rico Society of Microbiologists.
1855. Santo-Domingo*, J., F. Fuentes, and **T. C. Hazen**. Contributed. Survival and activity of *Streptococcus faecalis* and *Escherichia coli* in near-shore marine waters receiving petroleum effluent. December 1985, San Juan, PR. Semi-annual meeting of the Puerto Rico Society of Microbiologists.
1856. **Hazen, T. C.** Invited Seminar. Survival and activity of pathogens and their indicators in tropical waters. October 1985, Cayey, PR. Department of Physiology, Cayey School of Medicine.
1857. **Hazen, T. C.** Convener. Water Microbiology. October 1985, San Juan, PR. Puerto Rico Society of Microbiologists.
1858. **Hazen, T. C.** Invited Seminar. Survival and activity of coliforms in tropical waters. October 1985, San Juan, PR. Department of Biochemistry, University of Puerto Rico, School of Medicine.
1859. **Hazen, T. C.** Convener. Data Management and Analysis in Microbiology. October 1985, Río Piedras, PR. Puerto Rico Society of Microbiologists.
1860. **Hazen, T. C.** Invited Seminar. Survival and activity of pathogens and their indicators in tropical environments. September 1985, Aiken, SC. Savannah River Ecology Laboratory, University of Georgia.
1861. **Hazen, T. C.** Faculty Invited Seminar. Workshop on Computer-Assisted-Instruction in Biology. August 1985, San Juan, PR. InterAmerican University.

1862. Fuentes*, F. A., and **T. C. Hazen**. Contributed. Petroleum biodegradation in tropical near-shore coastal waters receiving the effluents from a petroleum refinery. June 1985, Río Grande, PR. Annual meeting of the Puerto Rico Society for Microbiology.
1863. Arias*, W. E., and **T. C. Hazen**. Contributed. Epilithic communities in a tropical rain forest watershed. June 1985, Río Grande, PR. Annual meeting of the Puerto Rico Society for Microbiology.
1864. Elías-Maldonado*, E., and **T. C. Hazen**. Contributed. Screening of a fluorescent antibody for the presumptive detection and identification of *Yersinia enterocolitica*. June 1985, Río Grande, PR. Annual meeting of the Puerto Rico Society for Microbiology.
1865. **Hazen, T. C.** Newspaper Article. "Ojo con los ostiones cantaminado en Boqueron by Clarence Beardsley. Sunday June 16 1985, San Juan, PR. El Mundo.
1866. **Hazen, T. C.** Invited Seminar. I got it, now what do I do with it? - A seminar on statistical decisions. June 1985, San Juan, PR. Annual meeting of the Puerto Rico Society for Microbiology.
1867. Fuentes*, F. A., and **T. C. Hazen**. Contributed. Petroleum biodegradation in tropical near-shore coastal waters receiving the effluents from a petroleum refinery. March 1985, Las Vegas, NV. Annual meeting of the American Society for Microbiology.
1868. Arias*, W. E., and **T. C. Hazen**. Contributed. Epilithic communities in a tropical rain forest watershed. March 1985, Las Vegas, NV. Annual meeting of the American Society for Microbiology.
1869. Elías-Maldonado, E., and **T. C. Hazen***. Contributed. Screening of a fluorescent antibody for the presumptive detection and identification of *Yersinia enterocolitica*. March 1985, Las Vegas, NV. Annual meeting of the American Society for Microbiology.
1870. **Hazen, T. C.** Invited Seminar. The ecology of *Aeromonas hydrophila* and disease in fish and alligators. February 1985, Tucson, AZ. University of Arizona.
1871. **Hazen, T. C.** Invited Seminar. Microbiological pollution of the environment. February 1985, San Juan, PR. School of Medicine, University of Puerto Rico.
1872. **Hazen, T. C.** Invited Seminar. Aquatic Microbial Ecology. January 1985, San Juan, PR. School of Medicine, University of Puerto Rico.
1873. **Hazen, T. C.** Invited Seminar. Workshop on computer programming and applications for faculty. December 1984, Río Piedras, PR. Resource Center for Science and Engineering.
1874. **Hazen, T. C.** Invited Seminar. Workshop on Computer-assisted-instruction modules for biology. September 1984, San Juan, PR. InterAmerican University.
1875. **Hazen, T. C.** Invited Seminar. Seminar on how to do biological research (methods and funding). September 1984, Río Piedras, PR. InterAmerican University.
1876. **Hazen, T. C.** Invited Seminar. El uso de la microcomputadora. August 1984, Río Piedras, PR. Honors Program, University of Puerto Rico.
1877. **Hazen, T. C.** Invited: Workshop on computer programming and applications for faculty. May 1984, Río Piedras, PR. Resource Center for Science and Engineering.
1878. López, I., M. Bermúdez*, L. Almodovar, E. Medina, and **T. C. Hazen**. Contributed. Enteroviruses from a tropical lagoon. April 1984, Río Piedras, PR. American Chemical Society of Puerto Rico annual junior technical meeting.
1879. Santiago*, J., and **T. C. Hazen**. Contributed. Comparison of four membrane filter methods and MPN for enumeration of fecal coliforms in tropical waters. April 1984, Río Piedras, PR. American Chemical Society of Puerto Rico annual junior technical meeting.
1880. Elías de Maldonado*, E. E., and **T. C. Hazen**. Contributed. Sobrevivencia y actividad de *Yersinia enterocolitica* en la cuenca de un bosque tropical. April 1984, Río Piedras, PR. American Chemical Society of Puerto Rico annual junior technical meeting.
1881. **Hazen, T. C.** Invited Seminar. Environmental Microbiology. April 1984, Cidra, PR. Millipore Corp. and the Puerto Rico Society for Microbiology.
1882. **Hazen, T. C.** Invited Seminar. How to become a scientist and environmental microbiology. March 1984, Walled Lake, MI. Walled Lake Central High School.
1883. **Hazen, T. C.** Invited Seminar. The ecology of *Aeromonas hydrophila* and red-sore disease in the southeastern United States. March 1984, Rochester, MI. Oakland University.
1884. Santiago*, J., **T. C. Hazen**, and N. Pérez-Rosas. Contributed. Comparison of four membrane filter methods and MPN for fecal coliforms in tropical waters. March 1984, St. Louis, MO. Annual meeting of the American Society for Microbiology.
1885. López de Cardona*, I., M. Bermúdez, L. Almodovar, E. Medina, and **T. C. Hazen**. Contributed. Enteroviruses in shellfish from a tropical lagoon. March 1984, St. Louis, MO. Annual meeting of the American Society for Microbiology.

1886. Carrillo*, M., E. Estrada, and **T. C. Hazen**. Contributed. Evaluation of *Bifidobacteria* as a potential indicator of human fecal contamination in tropical freshwater. March 1984, St. Louis, MO. Annual meeting of the American Society for Microbiology.
1887. Elías-Maldonado*, E., and **T. C. Hazen**. Contributed. Survival and activity of *Yersinia enterocolitica* in a tropical rain forest watershed. March 1984, St. Louis, MO. Annual meeting of the American Society for Microbiology.
1888. Fuentes*, F. A., and **T. C. Hazen**. Contributed. Diauxic growth of *Pseudomonas aeruginosa* PRG-1 on glucose and benzothiophene. March 1984, St. Louis, MO. Annual meeting of the American Society for Microbiology.
1889. **Hazen, T. C.** Invited Seminar. Microbiological pollution of the environment. February 1984, San Juan, PR. School of Medicine, University of Puerto Rico.
1890. **Hazen, T. C.** Invited Seminar. Biogeochemical cycling. February 1984, San Juan, PR. School of Medicine, University of Puerto Rico.
1891. **Hazen, T. C.** Invited Seminar. Microbiological water quality in Puerto Rico. January 1984, Ponce, PR. Catholic University of Puerto Rico.
1892. Esch*, G. W., and **T. C. Hazen**. Contributed. Long-term study of *Crepidostomum cooperi* in the burrowing mayfly, *Hexagenia limbata*. December 1983, San Antonio, TX. Annual meeting of the American Society of Parasitologists.
1893. **Hazen, T. C.** Invited Moderator. Non-fermentative gram-negative bacilli. November 1983, Río Piedras, PR. Puerto Rico Society for Microbiology Workshop.
1894. **Hazen, T. C.** Invited workshop. Microcomputers documentation in general: statistical analysis, graphics, budgeting, etc. October 20 & 21 1983, Isla Verde, PR. Annual Chemical Conference of the Puerto Rico Chemists Association.
1895. **Hazen, T. C.** Invited. Round Table discussion on: Nature as a reservoir of animal pathogens. August 1983, East Lansing, MI. Third International Symposium on Microbial Ecology.
1896. **Hazen, T. C.** Contributed. A comparison of in situ survival and activity of four enteric bacteria and one yeast in tropical marine and freshwaters with special attention to the effects of water quality. August 1983, East Lansing, MI. Third International Symposium on Microbial Ecology.
1897. **Hazen, T. C.** Invited Seminar. Stress, antibodies and disease in natural populations of largemouth bass. August 1983, Houghton, MI. Michigan Technological University.
1898. **Hazen, T. C.** Invited Seminar. Statistics in research investigation. July 1983, Río Piedras, PR. Workshop for High School Science Teachers.
1899. **Hazen, T. C.** Invited Seminar. Statistics in research investigation. June 1983, Río Piedras, PR. Workshop for High School Science Teachers.
1900. **Hazen, T. C.** Invited Workshop. Microcomputers in the laboratory. June 1983, Dorado, PR. Colegio de Quimicos de Puerto Rico.
1901. Pérez-Rosas*, N. and **T. C. Hazen**. Contributed. Isolation and survival of *Vibrio* spp. in tropical aquatic environments. April 1983, Ponce, PR. American Chemical Society of Puerto Rico annual junior technical meeting.
1902. Fuentes*, F. A., E. Bíamon, and **T. C. Hazen**. Contributed. Bacterial chemotactic response towards mostos. April 1983, Ponce, PR. American Chemical Society of Puerto Rico annual junior technical meeting.
1903. Estrada*, E., and **T. C. Hazen**. Contributed. Survival and activity of *Aeromonas hydrophila* in sediments. April 1983, Ponce, PR. American Chemical Society of Puerto Rico annual junior technical meeting.
1904. Elías*, E. E., and **T. C. Hazen**. Contributed. *Yersinia enterocolitica* en aguas tropicales. April 1983, Ponce, PR. American Chemical Society of Puerto Rico annual junior technical meeting.
1905. Carrillo*, M., and **T. C. Hazen**. Contributed. *Bifidobacterium* as an indicator of human fecal contamination in tropical freshwaters. June 1983, San Juan, PR. Puerto Rico Society for Microbiology annual meeting.
1906. Carrillo*, M., and **T. C. Hazen**. Contributed. *Bifidobacterium* as an indicator of human fecal contamination in tropical freshwaters. April 1983, Ponce, PR. American Chemical Society of Puerto Rico annual junior technical meeting.
1907. **Hazen, T. C.** Invited Seminar. Stress, body condition, antibodies and disease in natural populations of largemouth bass. April 1983, Champaign, IL. Illinois Natural History Survey (University of Illinois)
1908. **Hazen, T. C.** Invited Workshop. Enumerating and identifying *Aeromonads* from water and fish. April 1983, Indianapolis, IN. Eighth Annual Assoc. Official Analytical Chemists Spring Workshop.
1909. **Hazen, T. C.** Invited Seminar. Microcomputer applications in Biology. April 1983, San Juan, PR. InterAmerican University.
1910. Fuentes*, F. A., and **T. C. Hazen**. Contributed. Bacterial chemotactic responses towards mostos. March 1983, New Orleans, LA. American Society for Microbiology annual meeting.
1911. López-Torres*, A. J., and **T. C. Hazen**. Contributed. Density, distribution and abundance of *Klebsiella pneumoniae* in a tropical rain forest watershed. March 1983, New Orleans, LA. American Society for Microbiology annual meeting.

1912. Valdés-Collazo*, L., **T. C. Hazen**, and A. J. Schultz. Contributed. Survival and distribution of *Candida albicans* in tropical waters. March 1983, New Orleans, LA. American Society for Microbiology annual meeting.
1913. **Hazen, T. C.** Invited Symposium. In situ diffusion chamber studies of bacteria and yeast in tropical environments. March 1983, New Orleans, LA. American Society for Microbiology annual meeting.
1914. Ortiz-Roque*, C. and **T. C. Hazen**. Contributed. Aislacion de *Legionella pneumophila* de aguas tropicales. December 1982, San Juan, PR. Primero Congreso Estudiantil de Investigacion Cientifica.
1915. López-Torres*, A. J., and **T. C. Hazen**. Contributed. In situ survival of *Klebsiella pneumoniae* in tropical waters. June 1982, San Juan, PR. Puerto Rico Society for Microbiology annual meeting.
1916. Valdés-Collazo*, L., **T. C. Hazen**, and A. J. Schultz. Contributed. Distribution and survival of *Candida albicans* in tropical freshwater. June 1982, San Juan, PR. Puerto Rico Society for Microbiology annual meeting.
1917. Fuentes*, F. A., C. L. Fuentes, E. J. Bíamon, and **T. C. Hazen**. Contributed. Bacterial chemotactic response towards mosto. June 1982, San Juan, PR. Puerto Rico Society for Microbiology annual meeting.
1918. Joyner*, S., and **T. C. Hazen**. Contributed. Distribution, abundance and activity of bacteria in bromeliad water from a tropical rain forest. June 1982, San Juan, PR. Puerto Rico Society for Microbiology annual meeting.
1919. Pérez-Rosas*, N., and **T. C. Hazen**. Contributed. Isolation and survival of *Vibrio* spp. in tropical aquatic environments. June 1982, San Juan, PR. Puerto Rico Society for Microbiology annual meeting.
1920. Sastre*, M. P., G. Candelas, and **T. C. Hazen**. Contributed. The ecology of *Donax denticulatus* in Puerto Rico. June 1982, Raleigh, NC. American Society of Limnology and Oceanography annual meeting.
1921. Aranda*, C. F., and **T. C. Hazen**. Contributed. A model for zooplankton distribution and abundance in a tropical rain forest stream. June 1982, Raleigh, NC. American Society of Limnology and Oceanography annual meeting.
1922. Medina*, E. I., and **T. C. Hazen**. Contributed. Water quality and distribution and abundance of shrimp in Camuy River, PR. June 1982, Raleigh, NC. American Society of Limnology and Oceanography annual meeting.
1923. Valdés Collazo*, L., and **T. C. Hazen**. Contributed. Distribucion y actividad de bacterias en una zona de captacion tropical lluviosa. April 1982, San Juan, PR. American Chemical Society of Puerto Rico annual junior technical meeting.
1924. Ortiz-Roque*, C., and **T. C. Hazen**. Contributed. Isolation of *Legionella pneumophila* from tropical waters. March 1982, Atlanta, GA. American Society for Microbiology annual meeting.
1925. Joyner*, S., and **T. C. Hazen**. Contributed. Distribution, abundance and activity of bacteria in bromeliad water from a tropical rain forest. March 1982, Atlanta, GA. American Society for Microbiology annual meeting.
1926. Pérez-Rosas*, N., and **T. C. Hazen**. Contributed. Distribution, survival and activity of *Vibrio* spp. in waters surrounding a tropical coral reef. March 1982, Atlanta, GA. American Society for Microbiology annual meeting.
1927. Valdés-Collazo*, L., and **T. C. Hazen**. Contributed. Distribution and activity of bacteria in a tropical rain forest watershed. March 1982, Atlanta, GA. American Society for Microbiology annual meeting.
1928. Prieto*, L., A. J. López-Torres*, and **T. C. Hazen**. Contributed. In situ survival and activity of *Escherichia coli* and *Klebsiella pneumoniae* in near-shore coastal waters of a tropical mangrove island. March 1982, Atlanta, GA. American Society for Microbiology annual meeting.
1929. **Hazen, T. C.** Invited Seminar. The survival of potentially pathogenic bacteria in tropical marine environments. February 1982, Charlotte Amalie, St. Thomas, VI. College of the Virgin Islands.
1930. **Hazen, T. C.** Contributed. Survival and activity of fecal coliform bacteria in polluted and natural waters of Puerto Rico. December 1981, San Juan, PR. Department of Natural Resources annual symposium, Commonwealth of Puerto Rico.
1931. **Hazen, T. C.** Invited Seminar. Microbial Ecology in Puerto Rico. November 1981, Ponce, PR. BetaBetaBeta of the Catholic University of Puerto Rico.
1932. Hazen*, T. C., C. F. Aranda, and N. Pérez. Contributed. Potentially pathogenic bacteria and water quality in a tropical rain forest watershed. November 1981, San Juan, PR. American Society of Tropical Medicine and Hygiene annual meeting.
1933. **Hazen, T. C.** Invited Seminar. Computer applications in biology. September 1981, Caguas, PR. Turabo College.
1934. **Hazen, T. C.** Invited Seminar. Computer applications in biology. September 1981, Arecibo, Puerto Rico. Arecibo Regional College.
1935. Fuentes*, F. A., and **T. C. Hazen**. Contributed. Chemotactic response of *Pseudomonas aeruginosa* (PRG-1) to benzothiophene in the presence of an alternative carbon source. June 1981, San Juan, PR. Puerto Rico Society for Microbiology annual meeting.
1936. Aranda*, C. F., and **T. C. Hazen**. Contributed. La ecologia del zooplankton de agua dulce en la cuenca del Río Mameyes. April 1981, Humacao, PR. Tercer Simposio de la Fauna de Puerto Rico.
1937. Aranda*, C. F., and **T. C. Hazen**. Contributed. The ecology of zooplankton in the Mameyes River watershed. April 1981, Mayagüez, PR. American Chemical Society of Puerto Rico annual junior technical meeting.
1938. Medina*, E. I., and **T. C. Hazen**. Contributed. Shrimp of the Camuy River. April 1981, Mayagüez, PR. American Chemical Society of Puerto Rico annual junior technical meeting.

1939. Bíamon*, E. J., and **T. C. Hazen**. Contributed. Survival and distribution of *Aeromonas hydrophila* in a Puerto Rico estuary receiving rum distillery effluent. April 1981, Mayagüez, PR. American Chemical Society of Puerto Rico annual junior technical meeting.
1940. Rivera*, F. L., and **T. C. Hazen**. Contributed. The synergistic effects of ammonia and temperature on the generation time of *Aeromonas hydrophila*. April 1981, Mayagüez, PR. American Chemical Society of Puerto Rico annual junior technical meeting.
1941. Fuentes, F. A., and **T. C. Hazen***. Contributed. Chemotactic response of *Pseudomonas aeruginosa* (PRG-1) to benzothiophene in the presence of an alternative carbon source. April 1981, Mayagüez, PR. American Chemical Society of Puerto Rico annual junior technical meeting.
1942. Sastre*, M. P., G. Candelas, and **T. C. Hazen**. Contributed. The ecology of *Donax denticulatus* in Puerto Rican beaches. April 1981, Mayagüez, PR. American Chemical Society of Puerto Rico annual junior technical meeting.
1943. **Hazen, T. C.** Invited Seminar. Deterministic models of bacteria density and water quality in temperate and tropical ecosystems. March 1981, Dallas, TX. American Society for Microbiology annual meeting.
1944. Bíamon*, E. J., and **T. C. Hazen**. Contributed. Survival and distribution of *Aeromonas hydrophila* in a Puerto Rico estuary receiving rum distillery effluent. March 1981, Dallas, TX. American Society for Microbiology annual meeting.
1945. **Hazen, T. C.** Invited Seminar. The survival and distribution of potential bacterial pathogens in natural aquatic systems of Puerto Rico. February 1981, San Juan, PR. Fifth InterAmerican University Symposium of Scientific Research.
1946. **Hazen, T. C.** Invited Seminar. Stress, body condition, antibodies and disease in natural populations of largemouth bass. February 1981, Parguera, PR. Department of Marine Sciences, University of Puerto Rico, Mayagüez.
1947. **Hazen, T. C.** Contributed. The relationship between the distribution and abundance of bacteria and water quality in the Río Mameyes watershed. November 1980, San Juan, PR. Department of Natural Resources annual symposium, Commonwealth of Puerto Rico.
1948. **Hazen, T. C.** Contributed. The ecology of *Aeromonas hydrophila*. September 1980, Coventry, England. Second International Symposium on Microbial Ecology.
1949. **Hazen, T. C.** Invited Seminar. Sampling methods and microbial ecology of the Mameyes River, a tropical rain forest watershed. July 1980, Río Piedras, PR. Forest Service Watershed Improvement Workshop, U. S. Department of Agriculture.
1950. Hazen*, T. C., G. W. Esch, and W. F. Crawford. Contributed. A model for *Aeromonas hydrophila* distribution and abundance in a North Carolina estuary. May 1980, Miami, FL. American Society for Microbiology annual meeting.
1951. **Hazen, T. C.** Invited Seminar. The ecology of *Aeromonas hydrophila* in a North Carolina estuary. February 1980, Río Piedras, PR. Department of Biology, University of Puerto Rico.
1952. **Hazen, T. C.** Invited Seminar. The 'fitting' of natural parasite populations to certain theoretical models. February 1980, Río Piedras, PR. Puerto Rican Society for Microbiology.
1953. Esch*, G. W., and **T. C. Hazen**. Invited Symposium. A long-term study of the population biology of *Crepidostomum cooperi* (Trematoda) in the burrowing mayfly, *Hexagenia limbata* (Ephemeroptera). January 1980, San Francisco, CA. American Association for the Advancement of Science annual meeting.
1954. **Hazen, T. C.** Invited Seminar. The ecology of *Aeromonas hydrophila* in a South Carolina cooling reservoir. June 1979, Boston, MA. Boston College.
1955. **Hazen, T. C.** Invited Seminar. The ecology of *Aeromonas hydrophila* in a South Carolina cooling reservoir. May 1979, Dayton, OH. University of Dayton.
1956. Hazen*, T. C., M. L. Raker, G. W. Esch, and R. E. Kuhn. Contributed. Natural agglutinating titers of largemouth bass to *Aeromonas hydrophila*. May 1979, Los Angeles, CA. American Society for Microbiology annual meeting.
1957. Hazen*, T. C., M. L. Raker, and G. W. Esch. Contributed. Chemotaxis of *Aeromonas hydrophila*. May 1979, Los Angeles, CA. American Society for Microbiology annual meeting.
1958. **Hazen, T. C.** Invited Seminar. The ecology of *Aeromonas hydrophila* in a South Carolina cooling reservoir. April 1979, Río Piedras, PR. University of Puerto Rico.
1959. Huizinga, H. W., G. W. Esch, and **T. C. Hazen***. Contributed. Histopathology of red-sore disease (*Aeromonas hydrophila*) in thermally stressed largemouth bass (*Micropterus salmoides*). December 1978, Richmond, VA. American Microscopical Society annual meeting.
1960. **Hazen, T. C.** Contributed. The ecology of the bacterium *Aeromonas hydrophila* in a South Carolina cooling reservoir. August 1978, Athens, GA. Ecological Society of America annual meeting.
1961. Esch*, G. W., and **T. C. Hazen**. Contributed. Studies on red-sore disease among largemouth bass in a thermally altered reservoir. August 1978, Fort Collins, CO. Wildlife Disease Association annual meeting.
1962. Gibbons*, J. W., D. H. Bennett, G. W. Esch, and **T. C. Hazen**. Contributed. Body condition of largemouth bass in a reservoir receiving heated effluent. November 1977, Augusta, GA. Symposium on Energy and Environmental Stress in Aquatic Systems.

1963. Gorden*, R. W., **T. C. Hazen**, A. B. Glassman, G. W. Esch, and C. B. Fliermans. Contributed. Bacterial infections of alligators in thermally altered habitats. November 1977, Augusta, GA. Symposium on Energy and Environmental Stress in Aquatic Systems.

1964. Esch*, G. W., and **T. C. Hazen**. Keynote address. Thermal ecology and stress: A case history for red-sore disease in largemouth bass (*Micropterus salmoides*). November 1977, Augusta, GA. Symposium on Energy and Environmental Stress in Aquatic Systems.

1965. Hazen*, T. C., G. W. Esch, and C. B. Fliermans. Contributed. The distribution of the bacterium *Aeromonas hydrophila* in thermally altered environments. November 1977, Augusta, GA. Symposium on Energy and Environmental Stress in Aquatic Systems.

1966. Fliermans*, C. B., **T. C. Hazen**, and M. R. Tansey. Contributed. Distribution of *Aeromonas hydrophila* and other pathogens in a South Carolina reservoir. September 1977, Iowa City, IA. Microbiology of Power Plant Thermal Effluents.

1967. **Hazen, T. C.**, R. P. Hirsch*, and G. W. Esch. Contributed. Hines and Nicholas revisited: a study of parasite distribution. August 1977, Las Vegas, NV. American Society of Parasitologists annual meeting.

1968. Hazen*, T. C., G. W. Esch, and C. B. Fliermans. Contributed. Distribution of *Aeromonas hydrophila* in a South Carolina cooling reservoir. May 1977, New Orleans, LA. American Society of Microbiology annual meeting.

1969. Glassman, A. B., C. E. Bennett*, **T. C. Hazen**, R. W. Gorden, and C. B. Fliermans. Contributed. Light and electron microscopy of the peripheral blood in *Alligator mississippiensis*. November 1977, Augusta, GA. Symposium on Energy and Environmental Stress in Aquatic Systems.

1970. Glassman, A. B., C. E. Bennett*, **T. C. Hazen**, R. W. Gorden, and C. B. Fliermans. Contributed. Light and electron microscopy of the peripheral blood in *Alligator mississippiensis*. April 1977, Savannah, GA. Georgia Academy of Science annual meeting.

1971. **Hazen, T. C.**, J. M. Aho*, and G. W. Esch. Contributed. Observations on the parasite fauna of the American alligator, *Alligator mississippiensis* in South Carolina. April 1977, Raleigh, NC. Southeastern Society of Parasitologists annual meeting.

1972. Hazen*, T. C., G. W. Esch, and M. L. Raker. Contributed. Light and electron microscope studies on lesions associated with red-sore disease in largemouth bass. April 1977, Raleigh, NC. Southeastern Society of Parasitologists annual meeting.

1973. Hazen*, T. C., and G. W. Esch. Contributed. The distribution of *Clinostomum marginatum* metacercaria in the centrarchid fish of a South Carolina cooling reservoir. August 1976, San Antonio, TX. American Society of Parasitologists annual meeting.

1974. Fliermans*, C. B., R. W. Gorden, **T. C. Hazen**, and G. W. Esch. Contributed. Distribution and survival of *Aeromonas* in a thermally altered lake. May 1976, Atlantic City, NJ. American Society for Microbiology annual meeting.

1975. Bowers*, G. J., and **T. C. Hazen**. Population biology of various parasites from ranid frogs. November 1975, New Orleans, LA. American Society of Parasitologists annual meeting.

1976. Esch, G. W., **T. C. Hazen***, and J. W. Gibbons. Invited Seminar. Thermal effluent and the epizootiology of *Epistylis* (Ciliophora, Peritricha). November 1975, New Orleans, LA. American Society of Parasitologists annual meeting.

1977. Esch, G. W., **T. C. Hazen***, and J. W. Gibbons. Invited Seminar. Thermal effluent and the epizootiology of *Epistylis* (Ciliophora, Peritricha). November 1975, Aiken, SC. Savannah River Ecology Laboratory.

1978. **Hazen, T. C.** Contributed. Some aspects of the population biology of two digenetic trematodes in the amphipod crustacean, *Hyalella azteca*. April 1975, Blacksburg, VA. Southeastern Society of Parasitologists annual meeting.