

DONNA E. FENNELL

Curriculum Vitae

Office: Dept. of Environmental Sciences
Rutgers University
14 College Farm Road, 231 ENR
New Brunswick, NJ 08901-8551

Tel: (732) 932-9800 ext 6204
Fax: (732) 932-8644
E-mail: fennell@envsci.rutgers.edu
Website: envsci.rutgers.edu/~fennell/Fennell

EDUCATION

- 1998 Cornell University, School of Civil and Environmental Engineering, Ithaca, NY
Ph.D. Civil and Environmental Engineering
Dissertation: "Comparison of Alternate Hydrogen Donors for Anaerobic Reductive Dechlorination"
Advisor: Professor James M. Gossett
- 1988 Cornell University, Department of Agricultural and Biological Engineering, Ithaca, NY
M.S. Agricultural and Biological Engineering
Thesis, "Kinetic Phase Separation of Anaerobic Digestion of Sorghum"
Advisor: Professor William J. Jewell
- 1985 University of Arkansas, Department of Agricultural Engineering, Fayetteville, AR
B.S. Agricultural Engineering, with honors

RESEARCH AND TEACHING EXPERIENCE

- 2002-present Assistant Professor, Department of Environmental Sciences, Rutgers University, New Brunswick, NJ
- 2001-2002 Research Associate, Department of Biochemistry and Microbiology, Rutgers University, New Brunswick, NJ
- 1999-2001 Postdoctoral Associate, Department of Biochemistry and Microbiology, Rutgers University, New Brunswick, NJ
- 1999 Research Associate, School of Civil and Environmental Engineering, Cornell University, Ithaca, NY
- 1998-1999 Postdoctoral Associate, School of Civil and Environmental Engineering, Cornell University, Ithaca, NY
- 1993-1998 Graduate Assistant, School of Civil and Environmental Engineering, Cornell University, Ithaca, NY
- 1987-1992 Research Support Specialist, Department of Agricultural and Biological Engineering, Cornell University, Ithaca, NY
- 1985-1987 Graduate Assistant, Department of Agricultural and Biological Engineering, Cornell University, Ithaca, NY

AWARDS, RECOGNITIONS, AND HONOR SOCIETIES

- 2007 *Sigma Xi*, The Scientific Research Society
- 2007 Research on bioremediation of dioxin- and PCB- contaminated sediments featured in "The Soil Explorers" made by Partners Video Magazine, a production of the Cooperative State Research, Education, and Extension Service (CSREES) [http://www.csrees.usda.gov/newsroom/partners/soil_explorers.html].

- 2006 Best Paper Award, American Society for Engineering Education, Environmental Engineering Division. Jones, S., Bhandari, A., Clapp, L., **Fennell, D.**, LaPara, T. and Tull, K. Diversity in environmental engineering: The good and bad. In *Proceedings of the Annual Conference for the American Society of Engineering Education*, Chicago, IL, June, **2006**.
- 2006 Appointment to the Science Advisory Board for Chambers Works, Deepwater NJ, DuPont Corporation.
- 1997 General Electric Faculty for the Future Loan to Grant
- 1996 -1997 American Association of University Women Educational Foundation Engineering Dissertation Fellowship
- 1996 Netherlands Organization for International Cooperation in Higher Education Scholarship for the Summer Course in The Netherlands, Dutch Language and Culture
- 1995 The Alice H. Cook and Constance E. Cook Award, Cornell University, 1995. "In recognition of efforts on behalf of women at Cornell and beyond."
- 1985 Outstanding Senior, Department of Agricultural Engineering, University of Arkansas, Fayetteville, AR
- 1984 *Tau Beta Pi*, The Engineering Honor Society
- 1984 *Alpha Epsilon*, The Agricultural Engineering Honor Society

PUBLICATIONS

Peer-Reviewed Journal Articles

(*Fennell's student; †Fennell's post-doctoral associate; #senior author)

- *Liu, F.; Cichocka, D.; Nijenhuis, I.; Richnow, H.H.; and #**Fennell, D.E.** **2008**. Carbon stable isotope fractionation of chloroethenes and polychlorinated dibenzo-*p*-dioxins by a culture containing *Dehalococcoides ethenogenes* strain 195. Ready for resubmission to *Environmental Science and Technology*.
- †Krumins, V.; Park, J.-W.; *Son, E.-K.; Rodenburg, L.A.; Kerkhof, L.J.; Häggblom, M.M.; and #**Fennell, D.E.** **2008**. Sustained PCB dechlorination enhancement in Anacostia River sediment. Submitted to *Environmental Science and Technology*.
- Seshadri, S.; Han, T.; †Krumins, V.; **Fennell, D.E.**; and #Mainelis, G. **2008**. Application of ATP bioluminescence method to characterize performance of bioaerosol sampling devices. Submitted to the *Journal of Aerosol Science*.
- Lu, G.-N.; Dang, Z.; **Fennell, D.E.**; and #Huang, W. **2008**. Rules of thumb for assessing reductive dechlorination pathways of PCDDs. Submitted to *Chemosphere*.
- Ahn, Y.-B.; *Liu, F.; **Fennell, D.E.**; and #Häggblom, M.M. **2008**. Biostimulation and bioaugmentation to enhance PCDD dechlorination in River Kymijoki, Finland sediment. In press *FEMS Microbiology Ecology*.
- †Krumins, V.; *Son, E.-K.; Mainelis, G.; and #**Fennell, D.E.** **2008**. Retention of inactivated bioaerosols and ethene in a rotating bioreactor constructed for bioaerosol activity studies. In press *Clean—Soil, Air, Water, Special Issue on Bioaerosol Research*.
- *Liu, F. and #**Fennell, D.E.** **2008**. Dechlorination and detoxification of 1,2,3,4,7,8-hexachlorodibenzofuran by a mixed culture containing *Dehalococcoides ethenogenes* strain 195, *Environmental Science and Technology*, *42*, 602–607.
- Wang, Z.; #Huang, W.; **Fennell, D.E.**; and Peng, P. **2007**. Kinetics of reductive dechlorination of 1,2,3,4-TCDD in the presence of zero valent zinc, *Chemosphere*, *71*(2), 360-368.

- *Berry, D.; #Mainelis, G.; and **Fennell, D.E.** 2007. Effect of an ionic air cleaner on indoor/outdoor particle ratios in a residential environment, *Aerosol Science and Technology*, 41, 315-328.
- Ahn, Y.B.; Häggblom, M.M.; and #**Fennell, D.E.** 2005. Co-amendment with halogenated compounds enhances anaerobic microbial dechlorination of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin and 1,2,3,4-tetrachlorodibenzofuran in estuarine sediments. *Environmental Toxicology and Chemistry*, 24, 2775-2784.
- #Mainelis, G.; *Berry, D.; An, H.R.; Yao, M.; DeVoe, K.; **Fennell, D.E.**; and Jaeger, R. 2005. Performance and design of a single-pass bubbling bioaerosol generator. *Atmospheric Environment*, 39, 3521-3533.
- #Lee, K.Y.; Kostarelos, K.; and **Fennell, D.E.** 2004. Modeling the transport of dissolved contaminants originating from a NAPL source containing PAH compounds in groundwater. *Journal of Environmental Engineering and Science*, 3, 541-548.
- #**Fennell, D.E.**; Nijenhuis, I.; Wilson, S.F.; Zinder, S.H.; and Häggblom, M.M. 2004. *Dehalococcoides ethenogenes* strain 195 reductively dechlorinates diverse chlorinated aromatic pollutants. *Environmental Science and Technology*, 38, 2075-2081.
- Fennell, D.E.**; Rhee, S.-K.; Ahn, Y.B.; Häggblom, M.M.; and #Kerkhof, L.J. 2004. Detecting the dehalogenating microorganism in a sulfidogenic, 2-bromophenol-utilizing enrichment by T-RFLP fingerprinting of ribosomes. *Applied and Environmental Microbiology*, 70, 1169-1175.
- #Häggblom, M.M.; Ahn, Y.B.; **Fennell, D.E.**; Kerkhof, L.J.; and Rhee, S.-K. 2003. Anaerobic dehalogenation of organohalide contaminants in the marine environment. *Advances in Applied Microbiology*, 53, 61-84.
- Ahn, Y.B.; Rhee, S.-K.; **Fennell, D.E.**; Kerkhof, L.J.; Hentschel, U.; and #Häggblom, M.M. 2003. Reductive dehalogenation of brominated phenolic compounds by microorganisms associated with the marine sponge *Aplysina aerophoba*. *Applied and Environmental Microbiology*, 66, 4159-4166.
- Rhee, S.-K.; **Fennell, D.E.**; Häggblom, M.M.; and #Kerkhof, L.J. 2003. Detection by PCR of reductive dehalogenase motifs in a sulfidogenic 2-bromophenol-degrading consortium enriched from estuarine sediment. *FEMS Microbiology Ecology*, 43, 317-324.
- Voordeckers, J.W.; **Fennell, D.E.**; Jones, K.; and #Häggblom, M.M. 2001. Anaerobic biotransformation of Tetrabromobisphenol A, Tetrachlorobisphenol A and Bisphenol A in estuarine sediments. *Environmental Science and Technology*, 36, 696-701.
- Vargas, C.; **Fennell, D.E.**; and #Häggblom, M.M. 2001. Anaerobic reductive dechlorination of chlorinated dioxins in estuarine sediments. *Applied Microbiology and Biotechnology*, 57, 786-790.
- Fennell, D.E.**; Carroll, A.B.; Zinder, S.H.; and #Gossett, J.M. 2001. Assessment of indigenous reductive dechlorinating potential at a TCE-contaminated site using microcosms, polymerase chain reaction analysis, and site data. *Environmental Science and Technology*, 35, 1830-1839.
- Fennell, D.E.** and #Gossett, J.M. 1998. Modeling the production of and competition for hydrogen in a dechlorinating culture. *Environmental Science and Technology*, 32, 2450-2460.
- Fennell, D.E.**; #Gossett, J.M.; and Zinder, S.H. 1997. Comparison of butyric acid, ethanol, lactic acid, and propionic acid as hydrogen donors for the reductive dechlorination of tetrachloroethene. *Environmental Science and Technology*, 31, 918-926.

Fennell, D.E.; Nelson, Y.M.; Underhill, S.E.; White, T.E.; and #Jewell, W.J. **1992.** TCE degradation in a methanotrophic attached-film bioreactor. *Biotechnology and Bioengineering*, 42, 859-872.

Fennell, D.E.; Underhill, S.E.; and #Jewell, W.J. **1992.** Methanotrophic attached-film reactor development and biofilm characteristics. *Biotechnology and Bioengineering*, 40, 1218-1232.

Peer-Reviewed Articles in Preparation

(*Fennell's student; ¥Fennell's post-doctoral associate; #senior author)

*Son, E.-K.; ¥Krumins, V.; Mainelis, G.; and #Fennell, D.E. **2008.** Assessment of metabolic activity and growth capability of bacteria in substrate-enriched air. In preparation for submission to *Applied and Environmental Microbiology*.

*Son, E.-K.; Lee, K.Y.; and #Fennell, D.E. **2008.** Characterization of a novel *Dehalococcoides* enrichment culture dehalorespiring chlorinated ethenes. In preparation for submission to *Applied and Environmental Microbiology*.

*Wartell, B.; ¥Krumins, V.; and #Fennell, D.E. **2008.** Anaerobic digestion of equine stall waste. In preparation for submission to *Transactions of the ASABE*.

*Babson, D.; Ravit, B.; Fennell, D.; and #Krogmann, U. **2008.** Development of a dynamic energy balance for a bioreactor landfill. In preparation for submission to *Energy Policy*.

*Liu, F. ¥Krumins, V.; *Son, E.-K.; and #Fennell, D.E. **2008.** Review of biokinetics of PCDD/F and PCB dechlorination. In preparation for submission to *Biodegradation*.

*Liu, F. *Son, E.-K.; ¥Krumins, V.; and #Fennell, D.E. **2008.** Kinetics of PCDD/F dechlorination by a mixed culture containing *Dehalococcoides ethenogenes* strain 195. In preparation for submission to *Applied Microbiology and Biotechnology*.

Norman, R.S.; Ní Chadhain, S.; Fennell, D.E.; Zylstra, G.J.; and #Kukor, J.J. **2008.** Microbial functional diversity shifts in Passaic River sediments during the biodegradation of dibenzofuran. In preparation for submission to *Environmental Microbiology*.

Book Chapters

(*Fennell's student; ¥Fennell's post-doctoral associate; #senior author)

#Hägglblom, M.M.; Fennell, D.E.; Ahn, Y.-B.; Kerkhof, L.J.; *Liu, F.; and Ravit, B. **2006.** Microbial dehalogenation of organohalide pollutants in marine sediments. In Canepa, P. and Fava, F. (Eds.). Proceedings of International Summer School "Biomonitoring, bioavailability and microbial transformation of pollutants in sediments and approaches to stimulate their biodegradation", Genoa, Italy, September 12-14, 2005, pp. 109-122.

#Hägglblom, M.M.; Fennell, D.E.; Ahn, Y.-B.; Ravit, B.; and Kerkhof L.J. **2006.** Anaerobic dehalogenation of halogenated organic compounds: Novel strategies for bioremediation of contaminated sediments. In Twardowska, I.; Allen, H.E.; and Hägglblom, M.M. (Eds.), Viable Methods of Soil and Water Pollution Monitoring, Protection and Remediation, Proceedings of the NATO Advanced Research Workshop on Viable Methods of Soil and Water Pollution Monitoring, Protection and Remediation, Krakow, Poland, 27 June - 1 July 2005. NATO Science Series: IV: Earth and Environmental Sciences, Vol. 69, Springer. pp. 505-521.

#Fennell, D.E. and Gossett, J.M. **2003.** Microcosms For Site-Specific Evaluation of Enhanced Biological Reductive Dehalogenation. In Dehalogenation: Microbial Processes and Environmental Applications, Hägglblom, M.M. and Bossert, I.D. (Eds.). Kluwer Academic Publishers. pp. 385-420.

Editorial

Bhandari, A.; Jones, S.A.; Clapp, L.; **Fennell, D.**; and LaPara, T. **2006**. "Diversity in Environmental Engineering — Successes and Challenges." Editorial in *The Journal of Environmental Engineering*, 132, 701-702.

Books Edited

Proceedings of the Thirty-Fourth Mid-Atlantic Industrial and Hazardous Waste Conference. Available on Compact Disc. Häggblom, M.M.; **Fennell, D.E.**; and Lee, K.Y. (Eds.). Rutgers University, New Brunswick, NJ, **2002**.

Anaerobic Degradation of Chlorinated Solvents. Sixth International *In Situ* and On-Site Bioreclamation Symposium. Magar, V.S.; **Fennell, D.E.**; Morse, J.J.; Alleman, B.C.; and Leeson, A. (Eds.). San Diego, CA. June 4-7. **2001**. Battelle Press, Columbus, OH.

Refereed Conference Proceedings

(*Fennell's student; †Fennell's post-doctoral associate; #senior author)

#Jones, S.; Bhandari, A.; Clapp, L.; **Fennell, D.**; LaPara, T.; and Tull, K. **2006**. Diversity in environmental engineering: The good and bad. In *Proceedings of the Annual Conference for the American Society of Engineering Education*, Chicago, IL, June 2006. 656. [Accessible on the internet at <http://www.asee.org/acPapers/code/getPaper.cfm?paperID=10452>].

Willis, M.; #Shoemaker, C.; Gossett, J.; and **Fennell, D.** **1999**. Applications of a competitive hydrogenotrophic biological dechlorination transport model for groundwater remediation. In *Engineered Approaches for In Situ Bioremediation of Chlorinated Solvent Contamination*. Proceedings of the Fifth International *In Situ* and On-Site Bioreclamation Symposium, 5(2): 27-33. April 19 - 22. San Diego, CA.

Fennell, D.E.; Stover, M.A.; Zinder, S.H.; and #Gossett, J.M. **1995**. Comparison of alternative electron donors for sustaining anaerobic reductive dechlorination of tetrachloroethene. In *Proceedings of the Third International In Situ and On-Site Bioreclamation Symposium*, 3(4): 9-16. April 24 - 27. San Diego, CA.

Non-Refereed Articles and Conference Proceedings

(*Fennell's student; †Fennell's post-doctoral associate; #senior author)

#**Fennell, D.E.**; †Krumins, V.; Park, J.-W.; Rodenburg, L.A.; Häggblom M.M.; and Kerkhof, L.J. **2008**. Stimulation of reductive dechlorination of PCBs in contaminated sediments. Accepted, Symposia Papers Presented before the Division of Environmental Chemistry, American Chemical Society, 48(2), pp. 522-526. 236th ACS National Meeting, Philadelphia, PA.

*Kannepalli, S.; #**Fennell, D.E.**; and Huang, W. **2008**. Effect of double-walled carbon nanotubes on a TCE dechlorinating culture. Accepted, Symposia Papers Presented before the Division of Environmental Chemistry, American Chemical Society, 48(2), pp. 369-372. 236th ACS National Meeting, Philadelphia, PA.

Lu, G.-N.; Dang, Z.; **Fennell, D.E.**; and #Huang, W. **2008**. Reductive dechlorination reaction pathways of PCDD/Fs predicted with a computational chemistry approach. Accepted, Symposia Papers Presented before the Division of Environmental Chemistry, American Chemical Society, 48(2), pp. 722-725. 236th ACS National Meeting, Philadelphia, PA.

- *Li, Y.; #Fennell, D.E.; and Huang, W. **2008**. Transformation of aniline and 4-chloroaniline in sediments from an industrial site. Accepted, Symposia Papers Presented before the Division of Environmental Chemistry, American Chemical Society, *48(2)*, pp. 534-537. 236th ACS National Meeting, Philadelphia, PA.
- *Wartell, B.; *Krumins, V.; *George, R.; *Alt, J.; *Schwab, B.; *Kang, K.; and #Fennell, D.E. **2008**. Anaerobic digestion of equine stall waste. ASABE Paper No. 084253. Conference proceedings paper presented at the 2008 ASABE Annual International Meeting. June 29 – July 2, 2008. Providence, RI.
- #Fennell, D.E.; *Krumins, V.; Ravit, B.; and Totten, L.A. **2007**. Bioremediation approaches for PCB- and PCDD/F-contaminated sediments. Symposia Papers Presented before the Division of Environmental Chemistry, American Chemical Society, *47(2)*, pp. 393-397. 234th ACS National Meeting, Boston, MA.
- Du, S.; Xiao, B.; Belton, T.; Fennell, D.E.; and #Totten, L.A. **2007**. Source apportionment of PCBs in the Delaware River and NY/NJ Harbor. Symposia Papers Presented before the Division of Environmental Chemistry, American Chemical Society, *47(2)*, pp. 415-418. 234th ACS National Meeting, Boston, MA.
- *Babson, D.; #Krogmann, U.; Fennell, D.; and Ravit, B. **2007**. Development of a dynamic energy balance to assess operating efficiency of the Burlington County bioreactor landfill in New Jersey (USA). Sardinia 2007, The Proceedings of the Eleventh International Waste Management and Landfill Symposium. S. Margherita di Pula, Cagliari, Italy. Cossu, R.; Diaz, L.F.; and Stegmann, R. (Eds). 1 - 5 October 2007. pp. 773-774. CISA, Environmental Sanitary Engineering Centre, Italy.
- #Gossett, J. and Fennell, D. **2004**. "A model for describing remediation processes for groundwater polluted with chlorinated organic compounds - Part 1," Ma'im U'Svivah (*Water and Environment, Israeli journal in Hebrew*), 61, pp. 7-10.
- #Gossett, J. and Fennell, D. **2004**. "A model for describing remediation processes for groundwater polluted with chlorinated organic compounds - Part 2," Ma'im U'Svivah (*Water and Environment, Israeli journal in Hebrew*), 62, pp. 29, 57-59.
- #Gossett, J. and Fennell, D. **2004**. "A comparison between experimental and numerical modeling results of remediation of polluted groundwater," Ma'im U'Svivah (*Water and Environment, Israeli journal in Hebrew*), 62, pp. 21-28.
- #Fennell, D.E.; *Son, E.-K.; and Lee, K.Y. **2004**. Identification of dechlorinating bacteria in a New Jersey fractured rock aquifer. Symposia Papers Presented before the Division of Environmental Chemistry, American Chemical Society, *44(2)*, pp. 1-4. 228th ACS National Meeting, Philadelphia, PA.
- #Fennell, D.E.; *Liu, F.; and *Giacalone, M. **2004**. Dehalogenation of polyhalogenated aromatics in cultures and enrichments. Symposia Papers Presented before the Division of Environmental Chemistry, American Chemical Society, *44(2)*, pp. 1075-1079. 228th ACS National Meeting, Philadelphia, PA.
- Zarnadze, A.; #Totten, L.; Fennell, D.E.; *Giacalone, M.; and Krogmann, U. **2004**. PBDEs in the NY/NJ Harbor estuary. Symposia Papers Presented before the Division of Environmental Chemistry, American Chemical Society, *44(2)*, pp. 1098-1102. 228th ACS National Meeting, Philadelphia, PA.

- Ahn, Y.-B.; #Fennell, D.E.; Kerkhof, L.J.; and Häggblom, M.M. **2004**. Strategies for enhancing anaerobic reductive dechlorination of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin in estuarine sediments. Symposia Papers Presented before the Division of Environmental Chemistry, American Chemical Society, *44*(2), pp. 1067-1069. 228th ACS National Meeting, Philadelphia, PA.
- #Fennell, D.E.; *Liu, F.; Ahn, Y.B.; and Häggblom; M.M. **2003**. Polychlorinated dioxin dehalogenation in cultures and sediments: Results and biokinetic modeling. Symposia Papers Presented before the Division of Environmental Chemistry, American Chemical Society, *43*(2), pp. 164-168. 226th ACS National Meeting, New York, NY.
- *Son, E.-K.; Lee, K.Y.; and #Fennell, D.E. **2003**. Determining dechlorinating bioremediation potential in a fractured bedrock aquifer. Symposia Papers Presented before the Division of Environmental Chemistry, American Chemical Society, *43*(2), pp. 248-250. 226th ACS National Meeting, New York, NY.
- #Assaf-Anid, N.M.; Blenner, M.; Totten, L.A.; Ahn, Y.B.; Fennell, D.E.; and Häggblom; M.M. **2003**. Agreement of computational chemistry predictions of reductive dechlorination pathways with experimental microcosm studies. Symposia Papers Presented before the Division of Environmental Chemistry, American Chemical Society, *43*(2), pp. 1181-1185. 226th ACS National Meeting, New York, NY.

Peer Reviewed Technical Reports

- Fennell, D.E. **2005**. A Mass Balance on Dioxins and Dioxin-Like Compounds in the NY-NJ Harbor Estuary. A Report Submitted to The New York Academy of Sciences. [Included in the New York Academy of Sciences Harbor Project report on Dioxins. Accessible on the internet at <http://www.nyas.org/programs/harbor.asp>].
- Morse, J.J.; Alleman, B.C.; Gossett, J.M.; Zinder, S.H.; Fennell, D.E.; Sewell, G.W.; and Vogel, C.M. **1997**. A Treatability Test for Evaluating the Potential Applicability of the Reductive Anaerobic Biological *In Situ* Treatment Technology (RABITT) to Remediate Chloroethenes. A Technical Protocol developed for the Environmental Security Technology Certification Program, Department of Defense, USA. [Accessible on the internet at http://www.estcp.org/documents/techdocs/Rabitt_Protocol.pdf].

Technical Reports

- Brennan, M.; Specca, D.; Schilling, B.; Tulloch, D.; Paul, S.; Sullivan, K.; Helsel, Z.; Hayes, P.; Melillo, J.; Simkins, B.; Phillipuk, C.; Both, A.J.; Fennell, D.; Bonos, S.; Westendorf, M.; and Brekke, R. **2007**. Assessment of Biomass Energy Potential in New Jersey. New Jersey Agricultural Experiment Station Publication No. 2007-1. Rutgers, the State University of New Jersey, New Brunswick, NJ. July, **2007**. [Accessible on the internet at <http://njaes.rutgers.edu/bioenergy/njaes-biomass-assessment-finalreport.pdf>].
- Jewell, W.J.; Carter, S.R.; Fennell, D.E.; Hicks, E.E.; Nelson, Y.M.; Nock, T.D.; Richards, B.K.; and Wilson, M.S. **1992**. Methanotrophs for Pollution Control: TCE and Nutrient Removal with the Expanded Bed. Final Report prepared for the Gas Research Institute. PB-94-118049/XAB.
- Jewell, W.J.; Fennell, D.E.; Nelson, Y.M.; Underhill, S.E.; Wilson, M.S.; White, T.E.; and Gossett, J.M. **1990**. Methanotrophs and Methanogens for Pollution Control—PCE, TCE Removal from Groundwater and Macronutrient Removals from Wastewater. Final Report prepared for the Gas Research Institute. PB-92-123645/XAB.

Jewell, W.J.; Nelson, Y.M.; **Fennell, D.E.**; Underhill, S.E.; Wilson, M.S.; and White, T.E. **1989**. Methanotrophs for Biological Pollution Control: Feasibility of Developing an Attached Microbial Film Reactor and Kinetics of TCE Removal. Final Report prepared for Radian Corporation and the Gas Research Institute. PB-94-118049/XAB.

Conference Abstracts

- Krumins, V.; Park, J.-W.; Rodenburg, L.A.; Häggblom, M.M.; Kerkhof, L.J.; and **Fennell, D.E.** **2008**. Biostimulation of reductive dechlorination in PCB-contaminated sediment. *Abstracts of the General Meeting of the American Society for Microbiology*, 108, 2008, Abstract Q-014. June 1-5, Boston, MA.
- Son, E.-K.; Lee, K.Y.; and **Fennell, D.E.** **2008**. Characterization of a novel *Dehalococcoides* enrichment culture dehalorespiring chlorinated ethenes. *Abstracts of the General Meeting of the American Society for Microbiology*, 108, 2008, Abstract Q-025. June 1-5, Boston, MA.
- Son, E.-K.; Krumins, V.; Mainelis, G.; and **Fennell, D.E.** **2008**. Assessment of metabolic activity and growth capability of bacteria in air. *Abstracts of the General Meeting of the American Society for Microbiology*, 108, 2008, Abstract Q-176. June 1-5, Boston, MA.
- Liu, H.; Rodenburg, L.A.; **Fennell, D.E.**; and Häggblom, M.M. **2008**. Developing methods to stimulate dechlorination of historical polychlorinated dibenzo-*p*-dioxins and dibenzofurans in contaminated sediment. *Abstracts of the General Meeting of the American Society for Microbiology*, 108, 2008, Abstract Q-417. June 1-5, Boston, MA.
- Park, J.-W.; Krumins, V.; Kjellerup, B.V.; **Fennell, D.E.**; Kerkhof, L.J.; Sowers, K.R.; and Häggblom, M.M. **2008**. Developing PCR-based molecular methods for quantifying and monitoring dechlorination of polychlorinated compounds. *Abstracts of the General Meeting of the American Society for Microbiology*, 108, 2008, Abstract Q-415. June 1-5, Boston, MA.
- Li, Y.; Huang, W.; and **Fennell, D.E.** **2008**. Aniline and 4-chloroaniline transformation under different redox conditions. *Abstracts of the General Meeting of the American Society for Microbiology*, 108, 2008, Q-010. June 1 - 5, Boston, MA.
- Fennell, D.E.**; Liu, F., Son, E.-K.; and Krumins, V. **2008**. Biokinetic Analysis of PCDD/F Dechlorination by *Dehalococcoides*. *In press*, Proceedings of the Sixth International Conference on Remediation of Chlorinated and Recalcitrant Compounds. May 19-22, Monterey, CA.
- Krumins, V.; Park, J.-W.; Rodenburg, L.A.; Häggblom, M.M.; Kerkhof, L.J.; and **Fennell, D.E.** **2008**. Microcosms as a screening tool for PCB bioremediation. *In press*, Proceedings of the Sixth International Conference on Remediation of Chlorinated and Recalcitrant Compounds. May 19-22, Monterey, CA.
- Li, Y.; Huang, W.; and **Fennell, D.E.** **2008**. Transformation of 4-chloroaniline and aniline in contaminated aquifer sediments and aquatic sediments from an industrial site. *In press*, Proceedings of the Sixth International Conference on Remediation of Chlorinated and Recalcitrant Compounds. May 19-22, Monterey, CA.
- Park, J.-W.; Krumins, V.; **Fennell, D.E.**; Kerkhof, L.J.; and Häggblom, M.M. **2007**. Developing PCR-based molecular methods for quantifying and monitoring dechlorination of polychlorinated compounds. The Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP, Poster 181, p. E-140. December 4-6, Washington, D.C.
- Häggblom, M.M.; **Fennell, D.E.**; Kerkhof, L.J.; Totten, L.; Sowers, K.R.; Liu, H.; Liu, F.; Ahn, Y.-B.; Park, J.-W.; Krumins, V.; Kjellerup, B.V.; and Wright M. **2007**. Quantifying enhanced

- microbial dehalogenation of organohalide mixtures in contaminated sediments. The Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP, Poster 174, p. E-133. December 4-6, Washington, D.C.
- Fennell, D.E.;** Liu, F., Son, E.-K.; and Krumins, V. **2007**. Kinetics of reductive dechlorination of PCDD/Fs by a *Dehalococcoides*-containing culture. The Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP, Poster 160, p. E-125. December 4-6, Washington, D.C.
- Liu, H.; Park, J.-W.; Liu, F.; Ahn, Y.-B.; **Fennell, D.E.;** and Häggblom, M.M. **2007**. Ex situ dechlorination of polychlorinated dibenzo-*p*-dioxins and dibenzofurans in Kymijoki River Sediment, Finland. The Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP, Poster 196, p. E-147. December 4-6, Washington, D.C.
- Krumins, V.; Park, J.-W.; Häggblom, M.M.; Kerkhof, L.J.; Totten, L.; and **Fennell, D.E.** **2007**. Stimulation of PCB dechlorination and dechlorinators in sediment microcosms. The Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP, Poster 178, p. E-137. December 4-6, Washington, D.C.
- Liu, H.; Park, J.-W.; Liu, F.; Ahn, Y.-B.; **Fennell, D.E.;** and Häggblom, M.M. **2007**. Microcosm studies of polychlorinated dibenzo-*p*-dioxins and dibenzofurans dechlorination in Kymijoki River sediment, Finland. *Abstracts of the General Meeting of the American Society for Microbiology*, 107, 2007, pp. 568-569. June 1-5, Toronto, Canada.
- Liu, F.; **Fennell, D.E.;** Nijenhuis, I.; and Richnow, H.H. **2007**. Dechlorination of PCDD/Fs by *Dehalococcoides ethenogenes* strain 195 and assessment of carbon stable isotope fractionation. Abstract L-12, in: A.R. Gavaskar and C.F. Silver (Symposium Chairs), *In Situ and On-Site Bioremediation—2007*. Proceedings of the Ninth International *In Situ and On-Site Bioremediation Symposium* (Baltimore, Maryland; May 7–10, 2007). ISBN 978-1-57477-161-9, published by Battelle Press, Columbus, OH.
- Krumins, V.; Liu, F.; and **Fennell, D.E.** **2007**. Comparison of dechlorination of polychlorinated dibenzo-*p*-dioxin under conditions designed to enhance bioavailability. Abstract L-14, in: A.R. Gavaskar and C.F. Silver (Symposium Chairs), *In Situ and On-Site Bioremediation—2007*. Proceedings of the Ninth International *In Situ and On-Site Bioremediation Symposium* (Baltimore, Maryland; May 7–10, 2007). ISBN 978-1-57477-161-9, published by Battelle Press, Columbus, OH.
- Son, E.-K.; Mainelis, G.; Krumins, V.; and **Fennell, D.E.** **2007**. Is air an active microbial ecosystem? 4th Annual Microbial Observatories/Microbial Interactions and Processes Principal Investigators Meeting and Workshop. National Science Foundation. Abstract P30, p.85. March 1-3, Washington DC.
- Fennell, D.E.;** Liu, F.; Nijenhuis, I.; and Richnow, H.-H. **2006**. Carbon stable isotope fractionation during dechlorination of polychlorinated dibenzo-*p*-dioxins by *Dehalococcoides ethenogenes* strain 195. The Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP. Poster 136, P. E-116. November 28-30, Washington, D.C.
- Fennell, D.E.;** Liu, F.; and Krumins, V. **2006**. Effect of system heterogeneity on dechlorination of polychlorodibenzo-*p*-dioxins. The Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP, Poster 135, p. F-114. November 28-30, Washington, D.C.
- Ahn, Y.-B.; Liu, F.; Liu, H.; **Fennell, D.E.;** Kerkhof, L.J.; and Häggblom, M.M. **2006**. Effect of biostimulation and bioaugmentation on the bacterial community and the dechlorination of PCDD/Fs in sediment from River Kymijoki, Finland. The Partners in Environmental

- Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP, Poster 149, p. F-128. November 28-30, Washington, D.C.
- Hägglblom, M.M.; **Fennell, D.E.**; Kerkhof, L.J.; Totten, L.A.; Sowers, K.R.; Ahn, Y.-B.; Liu, F.; Liu, H.; Park, J.-W.; and Krumins, V. **2006**. Quantifying enhanced microbial dehalogenation of organohalide mixtures in contaminated sediments. The Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP, Poster 142, p. F-121. November 28-30, Washington, D.C.
- Hägglblom, M.M.; **Fennell, D.E.**; Kerkhof, L.J.; Totten, L.A.; Sowers, K.R.; Ahn, Y.-B.; Liu, F.; Liu, H.; Park, J.W.; and Krumins, V. **2006**. Quantifying enhanced microbial dehalogenation of organohalide mixtures in contaminated sediments. Abstracts of the 2nd Passaic River Symposium: Progress and Challenges. p. 58. October 13, Montclair, NJ.
- Fennell, D.E.** and Liu, F. **2006**. Dechlorination of PCDD/Fs and carbon stable isotope fractionation of PCDDs by *Dehalococcoides ethenogenes* strain 195. Abstracts of the 2nd Passaic River Symposium: Progress and Challenges. p. 56. October 13, Montclair, NJ.
- Liu, F.; Nijenhuis, I.; Richnow, H.H.; and **Fennell, D.E.** **2006**. Microbial dechlorination of polychlorinated dibenzo-*p*-dioxins by *Dehalococcoides* sp. and the use of carbon stable isotope fractionation as a possible monitoring tool. The International Symposium on Environmental Biotechnology 2006, p. 250. July 9-13. Leipzig, Germany.
- Ahn, Y.-B.; Liu, F.; Liu, H.; **Fennell, D.E.**; Kerkhof, L.J.; and Hägglblom, M.M. **2006**. Effect of biostimulation and bioaugmentation on the bacterial community and the dechlorination of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin in historically contaminated sediments of River Kymijoki, Finland. *Abstracts of the General Meeting of the American Society for Microbiology*, 106, 2006, p. 468. Abstract Q-020. May 21-25, Orlando, FL.
- Liu, F.; Nijenhuis, I.; Richnow, H.H.; and **Fennell, D.E.** **2006**. Investigation of carbon stable isotope fractionation of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin during reductive dechlorination by *Dehalococcoides* sp. *Abstracts of the General Meeting of the American Society for Microbiology*, 106, 2006, p. Abstract Q-008. May 21-25, Orlando, FL.
- Liu, H.; Liu, F.; Ahn, Y.-B.; **Fennell, D.E.**; and Hägglblom, M.M. **2006**. Reductive dechlorination of polychlorinated dibenzo-*p*-dioxins and dibenzofurans in sediments of River Kymijoki, Finland. *Abstracts of the General Meeting of the American Society for Microbiology*, 106, 2006, p. Abstract Q-022. May 21-25, Orlando, FL.
- Fennell, D.E.**; Liu, F.; and Son, E.-K. **2006**. Investigation of PCDD/F dechlorination using a competitive dechlorination model. *Abstracts of the General Meeting of the American Society for Microbiology*, 106, 2006, p. 469. Abstract Q-027. May 21-25, Orlando, FL.
- Fennell, D.E.**, Liu, F.; and Son E.-K. **2005**. Dechlorination of polychlorinated dibenzo-*p*-dioxins and dibenzofurans by *Dehalococcoides*. The Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP, p. F-68. November 29 - December 1, Washington, D.C.
- Hägglblom M.M.; **Fennell D.E.**; Ahn Y.-B.; Liu F.; Ravit B.; and Kerkhof L.J. **2005**. *In situ* enhancement of anaerobic microbial dechlorination: novel strategies for bioremediation of contaminated sediments. The Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP, p. F-67. November 29 - December 1, Washington, D.C.
- Fennell, D.E.** and Liu, F. **2005**. Exploitation of *Dehalococcoides* sp. for dechlorination of polychlorinated dibenzo-*p*-dioxins and dibenzofurans. *Abstracts of the Society of*

- Environmental Toxicology and Chemistry*, North America, 26th Annual Meeting, Abstract 596, p. 134. November 13-17, Baltimore, MD.
- Fennell, D.E. 2005.** A mass balance on PCDD/Fs and dioxin-Like PCBs for the New York-New Jersey Harbor. *Abstracts of the Society of Environmental Toxicology and Chemistry*, North America, 26th Annual Meeting, Abstract 207, p. 49. November 13-17, Baltimore, MD.
- Fennell, D.E.;** Liu, F.; Son, E.-K.; Zarnadze, A.; Krogmann, U.; and Totten, L.A. **2005.** Biotransformation of halogenated contaminants in sludges and enrichments from municipal anaerobic digesters. *Abstracts of the Society of Environmental Toxicology and Chemistry*, North America, 26th Annual Meeting, Abstract WP035, p. 228. November 13-17, Baltimore, MD.
- Liu, F. and **Fennell, D.E. 2005.** Microbial dechlorination of 1,2,3,4,7,8-hexachlorodibenzofuran by a *Dehalococcoides*-containing culture. The 21th International Conference on Soils, Sediments and Water, p. 181. October 17-20, Amherst, MA. [Available on the internet at http://scholarworks.umass.edu/soils_conf_abstracts/3]
- Son E.-K.; Lee. K.Y.; and **Fennell D.E. 2005.** Identification of tetrachloroethene- and vinyl chloride-dechlorinating bacteria enriched from tetrachloroethene-contaminated groundwater and sediments. The 21th Annual International Conference on Contaminated Soils, Sediments, and Water, p. 20. University of Massachusetts, October 17-20. Amherst, MA. [Available on the internet at http://scholarworks.umass.edu/soils_conf_abstracts/3]
- Liu, F. and **Fennell, D.E. 2005.** Dechlorination of polychlorinated dioxins and furans by *Dehalococcoides*. Abstract H-02, in: B.C. Alleman and M.E. Kelley (Conference Chairs), *In Situ and On-Site Bioremediation—2005*. Proceedings of the Eighth International *In Situ* and On-Site Bioremediation Symposium (Baltimore, Maryland; June 6–9, 2005). ISBN 1-57477-152-3, published by Battelle Press, Columbus, OH.
- Son, E.-K.; Lee, K.Y.; and **Fennell, D.E. 2005.** PCE- And VC-dechlorinating bacteria from the Brunswick Formation, NJ. Abstract G-34, in: B.C. Alleman and M.E. Kelley (Conference Chairs), *In Situ and On-Site Bioremediation—2005*. Proceedings of the Eighth International *In Situ* and On-Site Bioremediation Symposium (Baltimore, Maryland; June 6–9, 2005). ISBN 1-57477-152-3, published by Battelle Press, Columbus, OH.
- Liu, F. and **Fennell, D.E. 2005.** Dechlorination of polychlorinated dibenzo-*p*-dioxins and dibenzofurans by a *Dehalococcoides*, *Abstracts of the General Meeting of the American Society for Microbiology*, 105, 2005, p. 534. Abstract Q-364. May 23-27, Atlanta, GA.
- Son, E.-K.; Lee, K.Y.; and **Fennell, D.E. 2005.** Microbial reductive dechlorination in a fractured rock aquifer, *Abstracts of the General Meeting of the American Society for Microbiology*, 105, 2005, p. 464. Abstract Q-030. May 23-27, Atlanta, GA.
- Fennell, D.E.** and Liu, F. **2004.** Dehalogenation of chlorinated dibenzo-*p*-dioxins and dibenzofurans by *Dehalococcoides ethenogenes* strain 195. *Proceedings of the 4th World Congress and 25th Annual Meeting of the Society for Environmental Toxicology and Chemistry*, Abstract 430, p. 96. November 14-18, 2004, Portland, OR.
- Fennell, D.E.;** Son, E.-K.; and Lee, K.Y. **2004.** Potential for Anaerobic Chloroethene Remediation in a Fractured Rock Aquifer. Abstract 2F-07, in: A.R. Gavaskar and A.S.C. Chen (Eds.), *Remediation of Chlorinated and Recalcitrant Compounds—2004*. Proceedings of the Fourth International Conference on Remediation of Chlorinated and Recalcitrant Compounds (Monterey, CA; May 2004). ISBN 1-57477-145-0, published by Battelle Press, Columbus, OH.

- Fennell, D.E.** and Liu, F. **2004.** Dechlorination of polychlorinated dioxins in pure cultures and stimulated sediments. Abstract 4A-35, in: A.R. Gavaskar and A.S.C. Chen (Eds.), Remediation of Chlorinated and Recalcitrant Compounds—2004. Proceedings of the Fourth International Conference on Remediation of Chlorinated and Recalcitrant Compounds (Monterey, CA; May 2004). ISBN 1-57477-145-0, published by Battelle Press, Columbus, OH.
- Liu, F.; Ahn, Y.-B., Häggblom, M.M. and **Fennell, D.E.** **2004.** Investigation of bacterially-mediated dechlorination in polychlorinated dibenzo-*p*-dioxin contaminated freshwater sediments, *Abstracts of the General Meeting of the American Society for Microbiology*, 104, 2004, p. 524. Abstract Q-110. May 23-27, 2004, New Orleans, LA.
- Son, E.-K.; Ahn, Y.-B., Lee, K.Y., and **Fennell, D.E.** **2004.** Microbial reductive dechlorination in a fractured rock aquifer, *Abstracts of the General Meeting of the American Society for Microbiology*, 104, 2004, p. 560. Abstract Q-334. May 23-27, 2004, New Orleans, LA.
- Ahn, Y.-B.; **Fennell, D.E.**; Kerkhof, L.J.; and Häggblom, M.M. **2004.** Anaerobic reductive Dechlorination of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin in estuarine sediments is enhanced by various halogenated electron acceptors, *Abstracts of the General Meeting of the American Society for Microbiology*, 104, 2004, p.560. Abstract Q-335. May 23-27, 2004, New Orleans, LA.
- Häggblom, M.M., Ahn, Y. -B.; **Fennell, D.E.**; Kerkhof, L.J. **2003.** Various halogenated electron acceptors enhance anaerobic microbial dechlorination of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin and 1,2,3,4-tetrachlorodibenzofuran in estuarine sediments. The Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP, Abstract 243, p. 179. December 2-4. Washington, D.C.
- Fennell, D.E.**; Nijenhuis, I., Wilson, S.F.; Häggblom, M.M.; and Zinder, S.H. **2003.** Dehalococcoides Ethenogenes Strain 195 Dechlorinates a Diverse Suite of Chlorinated Aromatic Compounds Including Polychlorinated Benzenes, Dioxins, Furans, Naphthalenes, and Biphenyls. The Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP, Abstract 244, p. 180. December 2-4, 2003. Washington, D.C.
- Fennell, D.E.**; Nijenhuis, I., Wilson, S.F.; Häggblom, M.M.; and Zinder, S.H. **2003.** *Dehalococcoides ethenogenes* strain 195 dechlorinates a diverse suite of chlorinated aromatic compounds including polychlorinated dioxins, furans, naphthalenes and biphenyls. FAME, Frontiers in Assessment Methods for the Environment Symposium, an AEESP Symposium, p. 78. August 10-13. University of Minnesota, Minneapolis, MN.
- Fennell, D.E.**; Nijenhuis, I., Wilson, S.F.; Häggblom, M.M.; and Zinder, S.H. **2003.** Dioxin dehalogenation in sediments and cultures. Seventh International *In Situ* and On-Site Bioreclamation Symposium. Abstract 362. June 1-5, Orlando, FL.
- Fennell, D.E.**; Nijenhuis, I., Wilson, S.F.; Häggblom, M.M.; Zinder, S.H. **2003.** Dehalogenation of halogenated aromatic compounds by *Dehalococcoides ethenogenes* strain 195 in pure and mixed culture. *Abstracts of the General Meeting of the American Society for Microbiology*, 103, 2003, Abstract Q-023. May 18-22, Washington D.C.
- Ahn, Y.-B.; **Fennell, D.E.**; Kerkhof, L.J.; and Häggblom, M.M. **2003.** *In situ* enhancement of anaerobic microbial dechlorination of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin in estuarine sediments. *Abstracts of the General Meeting of the American Society for Microbiology*, 103, 2003, Abstract Q-109. May 18-22, Washington D.C.
- Fennell, D.E.**; Ahn, Y.B.; Häggblom, M.M.; and Kerkhof, L.J. **2002.** Potential for dehalogenation of dioxins in marine and estuarine sediments. The 18th Annual International Conference on Contaminated Soils, Sediments, and Water, p. 13.

University of Massachusetts, Amherst, MA. October 21-24. [Available on the internet at http://scholarworks.umass.edu/soils_conf_abstracts/1]

- Fennell, D.E.**; Ahn, Y. -B.; Kerkhof, L.J.; and Häggblom, M.M. **2002**. Preliminary assessment of a bioprocess model to describe the dehalogenation of spiked 1,2,3,4-tetrachlorodibenzo-*p*-dioxin in marine sediments. Proceedings of the 34th Mid-Atlantic Industrial and Hazardous Waste Conference. Poster 36, pp. 255-256. September 20-21. Rutgers University, New Brunswick, NJ.
- Ahn, Y.-B.; **Fennell, D.E.**; Kerkhof, L.J.; and Häggblom, M.M. **2002**. Halogenated aromatic compounds prime anaerobic microbial dechlorination of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin. Proceedings of the 34th Mid-Atlantic Industrial and Hazardous Waste Conference. Poster 35, pp. 253-254. September 20-21. Rutgers University, New Brunswick, NJ.
- Ahn, Y.B; Rhee, S.K.; **Fennell, D.E.**; Kerkhof, L.J.; Hentshel, U.; and Häggblom, M.M. **2002**. Reductive dehalogenation of haloaromatics by microorganisms associated with the marine sponge *Aplysina aerophoba*. *Abstracts of the General Meeting of the American Society for Microbiology* 102, 2002, p.382. Abstract Q21. May 19-23, Salt Lake City, UT.
- Fennell, D.E.**; Ahn, Y.B; Rhee, S.K.; Kerkhof, L.J.; Häggblom, M.M. **2002**. Stimulation of dioxin dechlorination in marine and estuarine sediments. *Abstracts of the General Meeting of the American Society for Microbiology* 102, 2002, p. 402. Abstract Q141. May 19-23, Salt Lake City, UT.
- Rhee, S.K.; **Fennell, D.E.**; Häggblom, M.M.; Kerkhof, L.J. **2002**. Detection of DNA fragments containing motifs of reductive dehalogenase gene in a sulfidogenic 2-bromophenol-degrading consortium enriched from estuarine sediment. *Abstracts of the General Meeting of the American Society for Microbiology* 102, 2002, p. 403. Abstract Q146. May 19-23, Salt Lake City, UT.
- Häggblom, M.M.; Ahn, Y.B.; **Fennell, D.E.**; Kerkhof, L.J.; and Rhee, S.K. **2001**. Molecular characterization of anaerobic microbial dehalogenating communities in marine and estuarine sediments. The Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP. November 27-29. Washington, DC.
- Häggblom, M.M.; Ahn, Y.B.; **Fennell, D.E.**; Kerkhof, L.J.; and Rhee, S.K. **2001**. Enhancement of anaerobic microbial dechlorination of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin in marine and estuarine sediments. The Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP. November 27-29. Washington, DC.
- Fennell, D.E.**; Kerkhof, L.J.; Ahn, Y.B.; Rhee, S.K.; and Häggblom, M.M. **2001**. Stimulation of organohalide transformation in marine sediments via redox manipulation and haloprimer addition. The 22nd Annual Meeting of the Society for Environmental Toxicology and Chemistry. Abstract 207, pp. 46. November 11-15. Baltimore, MD.
- Fennell, D.E.**; Voordeckers, J.M.; Jones, K.; Vargas, C.; Häggblom, M.M.; and Kerkhof, L.J. **2001**. Organohalide transformation in marine sediments stimulation via redox manipulation and haloprimer addition. Sixth International *In Situ* and On-Site Bioreclamation Symposium. Abstract 274. June 4-7, San Diego, CA.
- Alleman, B.E.; Morse, J.M.; Snyder, F.; Ackert, L.; Sewell, G.; Gossett, J.M.; and **Fennell, D.E.** **2001**. Reductive anaerobic biological *in situ* treatment technology (RABITT) treatability test: Results from Fort Lewis, WA: Sixth International *In Situ* and On-Site Bioreclamation Symposium. June 4-7, San Diego, CA.
- Fennell, D.E.**; Voordeckers, J.; Knight, V.K.; Häggblom, M.M.; and Kerkhof, L.J. **2000**. Molecular and biochemical characterization of dehalogenating consortia in marine sediments. The 17th Annual International Conference on Contaminated Soils,

Sediments, and Water. pp. 118. October 16-19. University of Massachusetts, Amherst, MA.

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- Fennell, D.E.** and Gossett, J.M. **2000**. TCE dechlorination and competition for donor in aquifer microcosms. Second International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Abstract 195. May 22-25, Monterey, CA.
- Carroll, A.B.; **Fennell, D.E.**; Anguish, T.W.; Gossett, J.M.; and Zinder, S.H. **2000**. Molecular characterization of TCE-contaminated sites. *Abstracts of the General Meeting of the American Society for Microbiology* 100, 2000, p. 569. May 21-25, Los Angeles, CA.
- Gossett, J.M. and **Fennell, D.E.** **1999**. Microcosm studies for evaluating reductive anaerobic *in situ* treatment technology. The Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP. November. Washington, DC.
- Carroll, A.B.; **Fennell, D.E.**; Gossett, J.M.; and Zinder, S.H. **1999**. The molecular detection of "*Dehalococcoides ethenogenes*" in PCE- and TCE-contaminated sites by PCR amplification of 16S rDNA. *Abstracts of the General Meeting of the American Society for Microbiology* 99, 1999, p. 539. Abstract Q34. May 30-June 3, Chicago, IL.
- Fennell, D.E.** and Gossett, J.M. **1999**. Modeling of microbial competition and dechlorination in aquifer microcosms. Fifth International *In Situ* and On-Site Bioreclamation Symposium. April 19-22. San Diego, CA.
- Willis, M.; Shoemaker, C.; Gossett, J.; and **Fennell, D.** **1999**. Applications of a competitive hydrogenotrophic biological dechlorination transport model for groundwater remediation. Fifth International *In Situ* and On-Site Bioreclamation Symposium, April 19-22. San Diego, CA, USA.
- Willis, M.; Shoemaker, C.; Gossett, J.; and **Fennell, D.** **1999**. A bioremediation groundwater transport model incorporating competitive biokinetics of dechlorination. Fifth International *In Situ* and On-Site Bioreclamation Symposium. April 19-22. San Diego, CA.
- Fennell, D.E.** and Gossett, J.M. **1998**. Modeling the production and competitive uses of hydrogen in a PCE-dechlorinating mixed culture. American Geophysical Union Spring Meeting. Abstract H51D-11. May 26-29, Boston, MA.
- Fennell, D.E.**; Zinder, S.H.; and Gossett, J.M. **1997**. Comparative studies of hydrogen donors for stimulation of tetrachloroethene dechlorination. Fourth International *In Situ* and On-Site Bioreclamation Symposium. April 28-May 1, New Orleans, LA.
- Fennell, D.E.**; Stover, M.A.; Zinder, S.H.; and Gossett, J.M. **1995**. Comparison of alternative electron donors for sustaining anaerobic reductive dechlorination of tetrachloroethene. Third International *In Situ* and On-Site Bioreclamation Symposium, April 24-27. San Diego, CA.

PRESENTATIONS

Invited Presentations

- 2008 Combined Biological-Physical-Chemical Treatment of 4-Chloroaniline and Aniline. Presented to the Science Advisory Board and Technical Team for DuPont Chambers Works. March 26, 2008. Wilmington, DE.
- 2007 Microbial Dechlorination of Dioxins and PCBs. New Jersey Institute of Technology

- Graduate Seminar Series, Department of Civil and Environmental Engineering, In Cooperation with Department of Chemistry and Environmental Science, and Rutgers University – Newark Department of Earth and Environmental Sciences, October 10, 2007. Newark, NJ.
- 2007 Biological Approaches for Hazardous Waste Remediation. Presentation before the Trustees Advisory Committee for the School of Environmental and Biological Sciences, Rutgers University, March 22, 2007. New Brunswick, NJ.
- 2007 Remediation of Sediments Contaminated by Dioxins and PCBs: Is there a role for bioremediation? Presented at The Microbiology Mini-Symposium at Rutgers University: Cultivating Traditions, Current Strength, and Future Frontiers. Jan. 25–26, 2007, New Brunswick, NJ.
- 2007 Anaerobic Digestion: A Primer. Presentation to the BioEnergy Committee of the New Jersey Department of Agriculture. January 19, 2007. Trenton NJ.
- 2006 Making the Leap: Can Dehalorespiring Bacteria Be Used to Remediate PCDD/F- and PCB-Contaminated Sediments? Rutgers University, Fermentation Club, Department of Biochemistry and Microbiology, November 3, 2006. New Brunswick, NJ.
- 2006 Making the Leap: Can Dehalorespiring Bacteria Be Used to Remediate PCDD/F- and PCB-Contaminated Sediments? Cornell University, School of Civil and Environmental Engineering, October 19, 2006. Ithaca, NY.
- 2006 Using Dehalorespiring Bacteria to Remediate Contaminated Sediments: Stimulation, Pathways and Monitoring Tools. UFZ Centre for Environmental Research, Leipzig-Halle, October 13, 2006. Leipzig, Germany.
- 2006 Manure to Bioenergy: A Watershed Management Solution for New Jersey? presented at the USDA CSREES Regional Water Quality Project for EPA Region 2 Annual Meeting June 15, 2006. Puerto Rico.
- 2004 Anaerobic Reductive Dechlorination of Chlorinated Solvents: State of the Science and Preliminary Results from the Passaic Formation at Rutgers Busch Campus Site. Invited talk at the Newark Basin Workshop, November 12, 2004 Rutgers University, New Brunswick, NJ.
- 2004 An Assessment of Inputs and Outputs of Dioxins and Dioxin-Like Compounds for the New York—New Jersey Harbor and Its Watershed. Invited lecture at the New York Academy of Sciences Harbor Consortium, June, 29, 2004. New York, NY.
- 2003 An Assessment of Inputs and Outputs of Dioxins and Dioxin-Like Compounds for the New York—New Jersey Harbor and Its Watershed. Invited lecture at the New York Academy of Sciences Harbor Consortium, December 12, 2003. New York, NY.
- 2003 An Assessment of Inputs and Outputs of Dioxins and Dioxin-Like Compounds for the New York—New Jersey Harbor and Its Watershed. Invited lecture at the New York Academy of Sciences PCBs-Dioxins Action Group, November 14, 2003. New York, NY.
- 2002 *In-Situ* Enhancement of Anaerobic Microbial Dechlorination of Polychlorinated Dibenzop-dioxins and Dibenzofurans in Marine and Estuarine Sediments, Department of Microbiology, Wageningen University, June, 2002. Wageningen, The Netherlands.
- 2002 Life in the Slow Lane: Dioxin Dehalogenation in Sediments and Enrichment Cultures. Distinguished Seminar Series, Dept. of Biochemistry and Microbiology, Rutgers University, October 14, 2002. New Brunswick, NJ.
- 2002 Engineering and Modeling Anaerobic Processes for Site Cleanup: How Knowledge of Dehalorespiring Organisms Altered Approaches for Remediation. Department of Environmental Sciences, Rutgers University, March 2002. New

- Brunswick, NJ.
- 2002 Engineering and Modeling Anaerobic Processes for Site Cleanup: How Knowledge of Dehalorespiring Organisms Altered Approaches for Remediation. Department of Civil and Environmental Engineering, Temple University, February 2002. Philadelphia, PA.
- 2001 Biodehalogenation for Bioremediation: Physiological and Molecular Characterization of Native Microbial Communities as Tools for Site Assessment. Drexel University, School of Environmental Science, Engineering and Policy, May 30, 2001. Philadelphia, PA.
- 2000 *In-Situ* Enhancement of Anaerobic Microbial Dechlorination of Polychlorinated Dibenzo-*p*-dioxins and Dibenzofurans in Marine and Estuarine Sediments, School of Civil and Environmental Engineering, Cornell University, October 2000. Ithaca, NY.
- 1999 Comparison of Hydrogen Donors for Anaerobic Reductive Dechlorination of Tetrachloroethene (PCE), Department of Civil Engineering, Auburn University, May 2, 1999. Auburn, AL.
- 1999 Comparison of Hydrogen Donors for Anaerobic Reductive Dechlorination of Tetrachloroethene (PCE), Department of Civil and Environmental Engineering, Worcester Polytechnic Institute, February 15, 1999. Worcester, MA.
- 1999 Comparison of Hydrogen Donors for Anaerobic Reductive Dechlorination of Tetrachloroethene (PCE), Department of Civil and Environmental Engineering, University of Maine, October 23, 1998. Orono, ME.
- 1992 Methanotrophic bacteria for TCE degradation, Department of Microbiology, Wageningen University, June 1992. Wageningen, The Netherlands.

Invited Conference Platform Presentations

- Fennell, D.E.;** Krumins, V.; Park, J.-W.; Rodenburg, L.A.; Häggblom M.M.; and Kerkhof, L.J. **2008.** Stimulation of reductive dechlorination of PCBs in contaminated sediments. Featured platform speaker in the session "Processing of Organic Pollutants in Aquatic Systems: From Micropollutants to Industrial Contaminants" before the Division of Environmental Chemistry at the 236th Meeting of the American Chemical Society, August 17-21, 2008, Philadelphia, PA.
- Fennell, D.E.;** Liu, F., Son, E.-K.; and Krumins, V. **2008.** Biokinetic Analysis of PCDD/F Dechlorination by *Dehalococcoides*. Invited speaker in the session "PCBs and Dioxins" at the Sixth International Conference on Remediation of Chlorinated and Recalcitrant Compounds. May 19-22, 2008. Monterey, CA.
- Fennell, D.E.** and Liu, F. **2005.** Exploitation of *Dehalococcoides* sp. for dechlorination of polychlorinated dibenzo-*p*-dioxins and dibenzofurans. Invited platform presentation at the Society of Environmental Toxicology and Chemistry, North America, 26th Annual Meeting, November 13-17, Baltimore, MD.
- Fennell, D.E.** **2005.** A Mass Balance on PCDD/Fs and dioxin-Like PCBs for the New York-New Jersey Harbor. Invited platform presentation at the Society of Environmental Toxicology and Chemistry, North America, 26th Annual Meeting, November 13-17, Baltimore, MD.
- Fennell, D.E.** and Liu, F. **2004.** Dehalogenation of chlorinated dibenzo-*p*-dioxins and dibenzofurans by *Dehalococcoides ethenogenes* strain 195. Invited platform presentation at the 4th World Congress and 25th Annual Meeting of the Society for Environmental Toxicology and Chemistry, November 14-18, 2004, Portland, OR.
- Fennell, D.E.;** Ahn, Y.B.; Häggblom, M.M.; and Kerkhof, L.J. **2002.** Potential for dehalogenation of dioxins in marine and estuarine sediments. Invited platform

presentation at the 18th Annual International Conference on Contaminated Soils, Sediments, and Water. October 21-24. University of Massachusetts, Amherst, MA.

Fennell, D.E.; Kerkhof, L.J.; Ahn, Y.B.; Rhee, S.K.; and Häggblom, M.M. **2001**. Stimulation of organohalide transformation in marine sediments via redox manipulation and haloprimer addition. Invited platform presentation at the 22nd Annual Meeting of the Society for Environmental Toxicology and Chemistry. November 11-15. Baltimore, MD.

Fennell, D.E.; Carroll, A.B.; Zinder, S.H.; and Gossett, J.M. **2000**. Assessment of indigenous reductive dechlorinating potential at a TCE-contaminated site using microcosms, polymerase chain reaction analysis, and site data. Invited platform presentation at the Northeastern Microbiologists: Physiology, Ecology, Taxonomy Conference, June, 2000, Blue Mountain Lake, NY.

Gossett, J.M. and **Fennell, D.E.** **1999**. Microcosm studies for evaluating reductive anaerobic *in situ* treatment technology. Invited platform presentation at the SERDP-ESTCP Partners for Environmental Technology Symposium. November. Washington, DC.

Gossett, J.M.; Smatlak, C.R.; **Fennell, D.E.**; and Zinder, S.H. **1996**. Reductive dehalogenation of chlorinated ethenes: competition and interdependence among microorganisms in mixed-culture systems. Invited platform presentation at the Mallorca Conference on Degradation of Organic Pollutants. June 29-July 3, Mallorca, Spain.

Conference Platform Presentations

Fennell, D.E.; Liu, F.; Son, E.-K.; and Krumins V. **2008**. Biokinetic analysis of PCDD/F dechlorination by *Dehalococcoides*. Platform presentation at the Sixth International Conference on Remediation of Chlorinated and Recalcitrant Compounds. May 19-22, Monterey, CA.

Babson, D.; **Fennell, D.**; Ravit, B.; and Krogmann, U. **2008**. Sustainable waste management system design: Developing and utilizing an energy balance to assess efficiency and propose enhancement. Platform presentation at the 22nd International Conference on Solid Waste, Journal of Solid Waste Technology and Management. March 30 - April 2, Philadelphia, PA.

Wartell, B.; Krumins, V.; **Fennell, D.** **2008**. The effect of softwood bedding on anaerobic digestion of equine waste. Platform presentation at the 22nd International Conference on Solid Waste, Journal of Solid Waste Technology and Management. March 30 - April 2, Philadelphia, PA.

Fennell, D.E.; Krumins, V.; Ravit, B.; and Totten, L.A. **2007**. Bioremediation approaches for PCB- and PCDD/F-contaminated sediments. Platform presentation at the 234th National Meeting of the American Chemical Society. August 19-23, 2007. Boston, MA.

Krumins, V.; Ravit, B.; Totten, L.; and **Fennell, D.** **2007**. Dechlorination of Native PCBs in Kearny Marsh Sediments. Platform presentation at the Meadowlands Symposium II. May 15-17. Lyndhurst, NJ.

Fennell, D.E.; Liu, F.; Son, E.-K.; and Krumins V. **2007**. Remediation of Sediments Contaminated by Dioxins and PCBs: Is There a Role for "Bio"? Platform presentation at The Microbiology Mini-Symposium at Rutgers University: Cultivating Traditions, Current Strength, and Future Frontiers. January 25-26, 2007. New Brunswick, NJ.

Babson, D.; **Fennell, D.**; Ravit, B.; and Krogmann, U. **2007**. Development of a Dynamic Energy Balance to Assess Operating Efficiency of the Burlington County Bioreactor Landfill in New Jersey (USA). Platform presentation at Sardinia 2007: Eleventh International Waste Management and Landfill Symposium, Sardinia, Italy.

- Liu, F.; **Fennell, D.E.**; Nijenhuis, I.; and Richnow, H.H. **2007**. Dechlorination of PCDD/Fs by *Dehalococcoides ethenogenes* strain 195 and assessment of carbon stable isotope fractionation. Platform presentation at the Ninth International Symposium on *In Situ* and On-Site Bioremediation sponsored by Battelle May 6-10. Baltimore MD.
- Jones, S.A.; Bhandari, A.; Clapp, L.; **Fennell, D.**; LaPara, T.; and Tull, K. **2006**. Diversity in environmental engineering: The good and bad." Platform presentation at the Annual Conference and Exposition, American Society of Engineering Education, June 18-21, Chicago, IL.
- Fennell, D.E.**; Liu, F.; and Son, E.-K. **2006**. Reductive detoxification of chlorinated dioxin and furan contaminants as a bioremediation approach. Platform presentation at the American Society of Agricultural and Biological Engineering Annual International Meeting. Abstract 067061. July 9-12, 2006, Portland, OR.
- Liu, F.; Nijenhuis, I.; Richnow, H.H.; and **Fennell, D.E.** **2006**. Microbial dechlorination of polychlorinated dibenzo-*p*-dioxins by *Dehalococcoides* sp. and the use of carbon stable isotope fractionation as a possible monitoring tool. Platform presentation at the International Symposium on Environmental Biotechnology 2006, July 9-13, Leipzig, Germany.
- Son E.-K.; Lee, K.Y.; and **Fennell D.E.** **2005**. Identification of tetrachloroethene- and vinyl chloride-dechlorinating bacteria enriched from tetrachloroethene-contaminated groundwater and sediments. Platform presentation at the 21th Annual International Conference on Contaminated Soils, Sediments, and Water. University of Massachusetts, October 17-20. Amherst, MA.
- Liu, F. and **Fennell, D.E.** **2005**. Dechlorination of polychlorinated dioxins and furans by *Dehalococcoides*. Platform Presentation at the Eighth International *In Situ* and On-Site Bioreclamation Symposium, June 1-6, Baltimore, MD.
- Fennell, D.E.**; Liu, F.; and Giacalone, M. **2004**. Dehalogenation of polyhalogenated aromatics in cultures and enrichments. Platform presentation at the 228th National Meeting of the American Chemical Society, August 22-26. Philadelphia, PA.
- Ahn, Y.-B.; **Fennell, D.E.**; Kerkhof, L.J.; and Häggblom, M.M. **2004**. Strategies for enhancing anaerobic reductive dechlorination of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin in estuarine sediments. Platform presentation at the 228th National Meeting of the American Chemical Society, August 22-26. Philadelphia, PA.
- Fennell, D.E.** and Liu, F. **2004**. Dechlorination of polychlorinated dioxins in pure cultures and stimulated sediments. Platform presentation at the Fourth International Conference on Remediation of Chlorinated and Recalcitrant Compounds, May 24-27, Monterey, CA.
- Assaf-Anid, N.M.; Blenner, M.; Totten, L.A.; Ahn, Y.B.; **Fennell, D.E.**; and Häggblom; M.M. **2003**. Agreement of computational chemistry predictions of reductive dechlorination pathways with experimental microcosm studies. Platform presentation at the 226th National Meeting of the American Chemical Society, September 7-11. New York, NY.
- Fennell, D.E.**; Nijenhuis, I., Wilson, S.F.; Häggblom, M.M.; and Zinder, S.H. **2003**. Dioxin dehalogenation in sediments and cultures. Platform presentation at the Seventh International *In Situ* and On-Site Bioreclamation Symposium. June 1-5, Orlando, FL.
- Fennell, D.E.**; Voordeckers, J.M.; Jones, K.; Vargas, C.; Häggblom, M.M.; and Kerkhof, L.J. **2001**. Organohalide transformation in marine sediments stimulation via redox manipulation and haloprimer addition. Platform presentation at the Sixth International *In Situ* and On-Site Bioreclamation Symposium. June 4-7, San Diego, CA.
- Alleman, B. E.; Morse, J. M.; Snyder, F.; Ackert, L.; Sewell, G.; Gossett, J. M.; and **Fennell,**

- D.E. 2001.** Reductive anaerobic biological *in situ* treatment technology (RABITT) treatability test: Results from Fort Lewis, WA: Platform presentation at the Sixth International *In Situ* and On-Site Bioreclamation Symposium. June 4-7, San Diego, CA.
- Fennell, D.E.;** Voordeckers, J.; Knight, V.K.; Häggblom, M.M.; and Kerkhof, L.J. **2000.** Molecular and biochemical characterization of dehalogenating consortia in marine sediments. Platform presentation at the 17th Annual International Conference on Contaminated Soils, Sediments, and Water. University of Massachusetts, October 16-19. Amherst, MA.
- Alleman, B. E.; Morse, J. M.; Snyder, F.; Ackert, L.; Sewell, G.; Gossett, J. M.; and **Fennell, D.E. 2000.** Reductive anaerobic biological *in situ* treatment technology (RABITT) treatability test: Results from Cape Canaveral Air Station: Platform presentation at the Second International Conference on Remediation of Chlorinated and Recalcitrant Compounds. May 22-25. Monterey, CA.
- Fennell, D.E.** and Gossett, J.M. **1999.** Modeling of microbial competition and dechlorination in aquifer microcosms. Platform presentation at the Fifth International *In Situ* and On-Site Bioreclamation Symposium. April 19-22. San Diego, CA.
- Fennell, D.E.** and Gossett, J.M. **1998.** Modeling the production and competitive uses of hydrogen in a PCE-dechlorinating mixed culture. Platform presentation at the American Geophysical Union Spring Meeting. May 26-29, Boston, MA.
- Fennell, D.E.;** Zinder, S.H.; and Gossett, J.M. **1997.** Comparative studies of hydrogen donors for stimulation of tetrachloroethene dechlorination. Platform presentation at the Fourth International *In Situ* and On-Site Bioreclamation Symposium. April 28-May 1, New Orleans, LA.

Conference Poster Presentations

- Wartell, B.; Krumins, V.; George, R.; Alt, J.; Schwab, B.; Kang, K.; and **Fennell, D.E. 2008.** Anaerobic digestion of equine stall waste. Poster Presented at the ASABE Annual International Meeting. June 29 – July 2, Providence, RI.
- Krumins, V.; Park, J.-W.; Rodenburg, L.A.; Häggblom, M.M.; Kerkhof, L.J.; and **Fennell, D.E. 2008.** Biostimulation of reductive dechlorination in PCB-contaminated sediment. Poster presented at the 108th General Meeting of the American Society for Microbiology. June 1-5, Boston, MA.
- Son, E.-K.; Lee, K.Y.; and **Fennell, D.E. 2008.** Characterization of a novel *Dehalococcoides* enrichment culture dehalorespiring chlorinated ethenes. Poster presented at the 108th General Meeting of the American Society for Microbiology. June 1-5, Boston, MA. [American Society for Microbiology Student Travel Grant to E.-K. Son.](#)
- Son, E.-K.; Krumins, V.; Mainelis, G.; and **Fennell, D.E. 2008.** Assessment of metabolic activity and growth capability of bacteria in air. Poster presented at the 108th General Meeting of the American Society for Microbiology. June 1-5, Boston, MA.
- Liu, H.; Rodenburg, L.A.; **Fennell, D.E.;** and Häggblom, M.M. **2008.** Developing methods to stimulate dechlorination of historical polychlorinated dibenzo-*p*-dioxins and dibenzofurans in contaminated sediment. Poster presented at the 108th General Meeting of the American Society for Microbiology. June 1-5, Boston, MA.
- Park, J.-W.; Krumins, V.; Kjellerup, B.V.; **Fennell, D.E.;** Kerkhof, L.J.; Sowers, K.R.; and Häggblom, M.M. **2008.** Developing PCR-based molecular methods for quantifying and monitoring dechlorination of polychlorinated compounds. Poster presented at the 108th General Meeting of the American Society for Microbiology, Q-415. June 1-5, Boston, MA.

- Li, Y.; Huang, W.; and **Fennell, D.E. 2008**. Aniline and 4-chloroaniline transformation under different redox conditions. Poster presented at the 108th General Meeting of the American Society for Microbiology, Q010. June 1 - 5, Boston, MA.
- Krumins, V.; Park, J.-W.; Rodenburg, L.A.; Häggblom, M.M.; Kerkhof, L.J.; and **Fennell, D.E. 2008**. Microcosms as a screening tool for PCB bioremediation. Poster presented at the Sixth International Conference on Remediation of Chlorinated and Recalcitrant Compounds. May 19-22, Monterey, CA
- Li, Y.; Huang, W.; and **Fennell, D.E. 2008**. Transformation of 4-chloroaniline and aniline in contaminated aquifer sediments and aquatic sediments from an industrial site. Poster presented at the Sixth International Conference on Remediation of Chlorinated and Recalcitrant Compounds. May 19-22, Monterey, CA
- Loudon, J; Cooper, K.; Krogmann, U.; Ravit, B; and **Fennell, D. 2008**. Fate of chlorinated ethenes in landfill microcosms. Poster presented at the New Jersey Water Environment Association 93rd Annual Conference, April 30. Atlantic City, NJ. First place student poster competition.
- Schwab, B. and **Fennell, D.E. 2008**. Comparison of microbial communities in anaerobic biodiesels. Poster presentation at the Aresty Research Center for Undergraduates, Fourth Annual, University-wide, Undergraduate Research Symposium, April 22, Rutgers University, New Brunswick, NJ. Fennell's freshman research student.
- Wartell, B.; Krumins, V.; and **Fennell, D. 2008**. The effect of softwood bedding on anaerobic digestion of equine waste. Poster presentation at the 22nd International Conference on Solid Waste, Journal of Solid Waste Technology and Management. March 30 - April 2, Philadelphia, PA.
- Kang, K.; Flaherty, R.; Prasad, S.; Rashkovsky, M.; Schleck, C.; Silang, J.; Thiel, C.; Liu, W. and **Fennell, D.E. 2008**. Biogas energy production from food and horse waste. Poster presented at the 2nd Annual Microbiology Mini-Symposium at Rutgers University: Cultivating Traditions, Current Strength, and Future Frontiers. February 7-8. New Brunswick, NJ. Students from Fennell's freshman Bioenvironmental Engineering Laboratory course.
- Park, J.-W.; Krumins, V.; **Fennell, D.E.**; Kerkhof, L.J.; and Häggblom, M.M. **2007**. Developing PCR-based molecular methods for quantifying and monitoring dechlorination of polychlorinated compounds. Poster presented at the Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP. December 4-6, Washington, D.C.
- Häggblom, M.M.; **Fennell, D.E.**; Kerkhof, L.J.; Totten, L.; Sowers, K.R.; Liu, H.; Liu, F.; Ahn, Y.-B.; Park, J.-W.; Krumins, V.; Kjellerup, B.V.; and Wright M. **2007**. Quantifying enhanced microbial dehalogenation of organohalide mixtures in contaminated sediments. Poster presented at the Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP. December 4-6, Washington, D.C.
- Krumins, V.; Park, J.-W.; Häggblom, M.M.; Kerkhof, L.J.; Totten, L.; and **Fennell, D.E. 2007**. Stimulation of PCB dechlorination and dechlorinators in sediment microcosms. Poster presented at the Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP. December 4-6, Washington, D.C.
- Liu, H.; Park, J.-W.; Liu, F.; Ahn, Y.-B.; **Fennell, D.E.**; and Häggblom, M.M. **2007**. Microcosm studies of polychlorinated dibenzo-*p*-dioxins and dibenzofurans dechlorination in Kymijoki River sediment, Finland. Poster presented at the 107th General Meeting of the American Society for Microbiology. June 1-5, Toronto, ON, Canada.

- Krumins, V.; Liu, F.; and **Fennell, D.E. 2007**. Comparison of dechlorination of polychlorinated dibenzo-*p*-dioxin under conditions designed to enhance bioavailability. Poster Presented at the Ninth International Symposium on *In Situ* and On-Site Bioremediation sponsored by Battelle, May 6-10, Baltimore MD.
- Park, J.-W.; Krumins, V.; **Fennell, D.E.**; Kerkhof, L.J.; and Häggblom, M.M. **2007**. Developing PCR-based molecular methods for quantifying and monitoring dechlorination of polychlorinated dibenzo-*p*-dioxin. Poster presented at the Theobald Smith Society Annual Meeting. New Jersey Branch, American Society for Microbiology. May 3, New Brunswick, NJ.
- Loudon, J; Cooper, K.; Krogmann, U.; Ravit, B; and **Fennell, D. 2007**. Bioreactor landfill leachate: Initial assessment of bacterial diversity and toxicity to zebrafish (*Danio rerio*). Poster presentation at the Society of Environmental Toxicology and Chemistry - Hudson Delaware Chapter 23rd Annual Spring Meeting, April 26-27, Prallsville Mills, Stockton, NJ. Second place graduate student poster competition.
- Son, E.-K.; Mainelis, G.; Krumins, V.; and **Fennell, D.E. 2007**. Is air an active microbial ecosystem? Poster presented at the 4th Annual Microbial Observatories/Microbial Interactions and Processes Principal Investigators Meeting and Workshop. National Science Foundation. March 1-3, Washington DC.
- George, R.; Krumins, V.; and **Fennell, D.E. 2007**. Bioenergy production from methanogenic anaerobic digestion of horse waste. Poster presented at Microbiology at Rutgers: Cultivating Traditions, Current Strength, and Future Frontiers. January 25-26, New Brunswick, NJ. Fennell's undergraduate research student.
- Liu, F.; Nijenhuis, I.; Richnow, H.-H.; and **Fennell, D.E. 2007**. Carbon stable isotope fractionation of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin during reductive dechlorination by *Dehalococcoides* sp. Poster presented at the Microbiology Mini-Symposium at Rutgers University: Cultivating Traditions, Current Strength, and Future Frontiers. January 25–26. New Brunswick, NJ.
- Alt, J.; Caluseriu, A.; Lam, K.; Thompson, J.; Song, J.; Ma Y.; and **Fennell, D.E. 2007**. Potential for methane production from the anaerobic digestion of New Jersey mixed waste biomass sources. Poster presented at the Presented at the Microbiology Mini-Symposium at Rutgers University: Cultivating Traditions, Current Strength, and Future Frontiers January 25–26, New Brunswick, NJ. Students from Fennell's freshman Bioenvironmental Engineering Laboratory course.
- Babson, D.; **Fennell, D.**; Krogmann, U.; and Ravit, B. **2007**. Development of a dynamic energy balance to assess operating efficiency of the Burlington County bioreactor landfill in New Jersey (USA). Poster presented at the New Jersey Meadowlands Symposium II, May 15-17. Lyndhurst, NJ.
- Babson, D.; **Fennell, D.**; Krogmann, U.; and Ravit, B. **2007**. Bioenergy production from optimized bioreactor landfills. Poster presented at the Fifth Tripartite Workshop in Biotechnology, April 9-12. East Brunswick, NJ.
- Fennell, D.E.**; Liu, F.; and Krumins, V. **2006**. Effect of system heterogeneity on dechlorination of polychlorodibenzo-*p*-dioxin. Poster presented at the Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP. November 28-30. Washington, D.C.
- Häggblom, M.M.; **Fennell, D.E.**; Kerkhof, L.J.; Totten, L.A.; Sowers, K.R.; Ahn, Y.-B.; Liu, F.; Liu, H.; Park, J.-W.; and Krumins, V. **2006**. Quantifying enhanced microbial dehalogenation of organohalide mixtures in contaminated sediments. Poster presented

- at the Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP. November 28-30, Washington, D.C.
- Fennell, D.E.**; Liu, F.; Nijenhuis, I.; and Richnow, H.-H. **2006**. Carbon stable isotope fractionation during dechlorination of polychlorinated dibenzo-*p*-dioxins by *Dehalococcoides ethenogenes* strain 195. Poster presented at the Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP. November 28-30, Washington, D.C.
- Ahn, Y.-B.; Liu, F.; Liu, H.; **Fennell, D.E.**; Kerkhof, L.J.; and Häggblom, M.M. **2006**. Effect of biostimulation and bioaugmentation on the bacterial community and the dechlorination of PCDD/Fs in sediment from River Kymijoki, Finland. Poster presented at the Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP. November 28-30, Washington, D.C.
- Häggblom, M.M.; **Fennell, D.E.**; Kerkhof, L.J.; Totten, L.A.; Sowers, K.R.; Ahn, Y.-B.; Liu, F.; Liu, H.; Park, J.W.; and Krumins, V. **2006**. Quantifying enhanced microbial dehalogenation of organohalide mixtures in contaminated sediments. Poster presented at the 2nd Passaic River Symposium: Progress and Challenges. October 13, Montclair, NJ.
- Fennell, D.E.** and Liu, F. **2006**. Dechlorination of PCDD/Fs and carbon stable isotope fractionation of PCDDs by *Dehalococcoides ethenogenes* strain 195. Poster presented at the 2nd Passaic River Symposium: Progress and Challenges. October 13, Montclair, NJ.
- Ahn, Y.-B.; Liu, F.; Liu, H.; **Fennell, D.E.**; Kerkhof, L.J.; and Häggblom, M.M. **2006**. Effect of biostimulation and bioaugmentation on the bacterial community and the dechlorination of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin in historically contaminated sediments of River Kymijoki, Finland. Poster presentation at the American Society for Microbiology 106th General Meeting, May 21-25, Orlando, FL.
- Liu, F.; Nijenhuis, I.; Richnow, H.H.; and **Fennell, D.E.** **2006**. Investigation of carbon stable isotope fractionation of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin during reductive dechlorination by *Dehalococcoides* sp. Poster presentation at the American Society for Microbiology 106th General Meeting, May 21-25, Orlando, FL.
- Liu, H.; Liu, F.; Ahn, Y.-B.; **Fennell, D.E.**; and Häggblom, M.M. **2006**. Reductive dechlorination of polychlorinated dibenzo-*p*-dioxins and dibenzofurans in sediments of River Kymijoki, Finland. Poster presentation at the American Society for Microbiology 106th General Meeting, May 21-25, Orlando, FL.
- Fennell, D.E.**; Liu, F.; and Son, E.-K. **2006**. Investigation of PCDD/F Dechlorination Using a Competitive Dechlorination Model. Poster presentation at the American Society for Microbiology 106th General Meeting, May 21-25, Orlando, FL.
- Fennell, D.E.**, Liu, F.; and Son E.-K. **2005**. Dechlorination of polychlorinated dibenzo-*p*-dioxins and dibenzofurans by *Dehalococcoides*. Poster presented at the Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP. November 29 - December 1, Washington, D.C.
- Häggblom M.M.; **Fennell D.E.**; Ahn Y.-B.; Liu F.; Ravit B.; and Kerkhof L.J. **2005**. *In situ* enhancement of anaerobic microbial dechlorination: novel strategies for bioremediation of contaminated sediments. Poster presented at the Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP. November 29 -December 1, Washington, D.C.
- Fennell, D.E.**; Liu, F.; Son, E.-K.; Zarnadze, A.; Krogmann, U.; and Totten, L.A. **2005**. Biotransformation of halogenated contaminants in sludges and enrichments from

- municipal anaerobic digesters. Poster presentation at the Society of Environmental Toxicology and Chemistry, North America, 26th Annual Meeting, November 13-17, Baltimore, MD.
- Liu, F. and **Fennell, D.E. 2005.** Microbial dechlorination of 1,2,3,4,7,8-hexachlorodibenzofuran by a *Dehalococcoides*-containing culture. Poster presentation at the 21th International Conference on Soils, Sediments and Water, October 17-20, Amherst, MA.
- Liu, F.; Son, E.-K.; and **Fennell, D.E. 2005.** Dechlorination and detoxification of 1,2,3,4,7,8-hexachlorodibenzofuran by a *Dehalococcoides*-containing mixed culture. Poster presentation at the International Summer School "Biomonitoring, bioavailability and microbial transformation of pollutants in sediments and approaches to stimulate their biodegradation", September 12-14, Genoa, Italy. Best poster award.
- Son, E.-K.; Lee, K.Y.; and **Fennell, D.E. 2005.** Microbial reductive dechlorination in a fractured rock aquifer, Poster presentation at the 105th General Meeting of the American Society for Microbiology, May 23-27, Atlanta, GA.
- Liu, F. and **Fennell, D.E. 2005.** Microbial dechlorination of polychlorinated dibenzo-*p*-dioxin/furan congeners by a *Dehalococcoides*, Poster presentation at the 105th General Meeting of the American Society for Microbiology, May 23-27, Atlanta, GA. American Society for Microbiology Student Travel Grant to F. Liu.
- Son, E.-K.; Lee, K.Y.; and **Fennell, D.E. 2005.** PCE- And VC-dechlorinating bacteria from the Brunswick Formation, NJ, Poster presentation at the Eighth International *In Situ* and On-Site Bioreclamation Symposium, June 1-6, Baltimore, MD.
- Fennell, D.E.;** Son, E.-K.; and Lee, K.Y. **2004.** Identification of dechlorinating bacteria in a New Jersey fractured rock aquifer. Poster presented at the 228th American Chemical Society National Meeting, August 22-26, Philadelphia, PA.
- Zarnadze, A.; Totten, L.; **Fennell, D.E.;** Giacalone, M.; and Krogmann, U. **2004.** PBDEs in the NY/NJ Harbor estuary. Poster presented at the 228th American Chemical Society National Meeting, August 22-26, Philadelphia, PA.
- Fennell, D.E.;** Son, E.-K.; and Lee, K.Y. **2004.** Potential for anaerobic chloroethene remediation in a fractured rock aquifer. Poster presented at the Fourth International Conference on Remediation of Chlorinated and Recalcitrant Compounds, May 24-27, Monterey, CA.
- Liu, F.; Ahn, Y.-B.; Häggblom, M.M.; and **Fennell, D.E. 2004.** Investigation of bacterially-mediated dechlorination in polychlorinated dibenzo-*p*-dioxin contaminated freshwater sediments. Poster presentation at the American Society for Microbiology, 104th General Meeting. May 23-27. New Orleans, LA.
- Son, E.-K.; Ahn, Y.-B.; Lee, K.Y.; and **Fennell, D.E. 2004.** Microbial reductive dechlorination in a fractured rock aquifer. Poster presentation at the American Society for Microbiology, 104th General Meeting. May 23-27. New Orleans, LA.
- Ahn, Y.-B.; **Fennell, D.E.;** Kerkhof, L.J.; and Häggblom, M.M. **2004.** Anaerobic reductive dechlorination of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin in estuarine sediments is enhanced by various halogenated electron acceptors. Poster presented at the American Society for Microbiology, 104th General Meeting. May 23-27. New Orleans, LA.
- Son, E.-K. and **Fennell, D.E. 2004.** Microbial reductive dechlorination in a fractured rock aquifer. Poster presented at the New Jersey Water Environment Association Annual Conference. May 7, Atlantic City, NJ. Third place student poster competition.
- Liu, F; Ahn, Y.B.; Häggblom, M.M.; and **Fennell, D.E. 2004.** Investigation of microbiological dechlorination of dioxins in dioxin-contaminated sediments. Poster presented at the

New Jersey Water Environment Association Annual Conference. May 7. Atlantic City, NJ. First place student poster competition.

- Häggbloom, M.M., Ahn, Y. -B.; **Fennell, D.E.**; and Kerkhof, L.J. **2003.** Various halogenated electron acceptors enhance anaerobic microbial dechlorination of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin and 1,2,3,4-tetrachlorodibenzofuran in estuarine sediments. Poster presented at the Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP. December 2-4, Washington, D.C.
- Fennell, D.E.**; Nijenhuis, I.; Wilson, S.F.; Häggbloom, M.M.; and Zinder, S.H. **2003.** *Dehalococcoides ethenogenes* strain 195 dechlorinates a diverse suite of chlorinated aromatic compounds including polychlorinated benzenes, dioxins, furans, naphthalenes, and biphenyls. Poster presented at the Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP. December 2-4, Washington, D.C.
- Fennell, D.E.**; Nijenhuis, I.; Wilson, S.F.; Häggbloom, M.M.; and Zinder, S.H. **2003.** *Dehalococcoides ethenogenes* strain 195 dechlorinates a diverse suite of chlorinated aromatic compounds including polychlorinated dioxins, furans, naphthalenes and biphenyls. Poster presented at FAME, Frontiers in Assessment Methods for the Environment Symposium, an AEESP Symposium. August 10-13. University of Minnesota, Minneapolis, MN.
- Fennell, D.E.**; Nijenhuis, I.; Wilson, S.F.; Häggbloom, M.M.; and Zinder, S.H. **2003.** Dehalogenation of halogenated aromatic compounds by *Dehalococcoides ethenogenes* strain 195 in pure and mixed culture. Poster presented at the 103rd General Meeting of the American Society for Microbiology. May 18-22. Washington D.C.
- Ahn, Y.-B.; **Fennell, D.E.**; Kerkhof, L.J.; and Häggbloom, M.M. **2003.** *In situ* enhancement of anaerobic microbial dechlorination of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin in estuarine sediments. Poster presented at the 103rd General Meeting of the American Society for Microbiology. May 18-22. Washington D.C.
- Fennell, D.E.**; Ahn, Y. -B.; Kerkhof, L.J.; and Häggbloom, M.M. **2002.** Preliminary assessment of a bioprocess model to describe the dehalogenation of spiked 1,2,3,4-tetrachlorodibenzo-*p*-dioxin in marine sediments. Poster presentation at the 34th Mid-Atlantic Industrial and Hazardous Waste Conference. September 20-21. Rutgers University, New Brunswick, NJ.
- Ahn, Y.-B.; **Fennell, D.E.**; Kerkhof, L.J.; and Häggbloom, M.M. **2002.** Halogenated aromatic compounds prime anaerobic microbial dechlorination of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin. Poster presentation at the 34th Mid-Atlantic Industrial and Hazardous Waste Conference. September 20-21. Rutgers University, New Brunswick, NJ.
- Ahn, Y.-B.; Rhee, S.-K.; **Fennell, D.E.**; Kerkhof, L.J.; Hentshel, U.; and Häggbloom, M.M. **2002.** Reductive dehalogenation of haloaromatics by microorganisms associated with the marine sponge *Aplysina aerophoba*. Poster presented at the 102nd General Meeting of the American Society for Microbiology. May 19-23. Salt Lake City, UT.
- Fennell, D.E.**; Ahn, Y.-B.; Rhee, S.-K.; Kerkhof, L.J.; and Häggbloom, M.M. **2002.** Stimulation of dioxin dechlorination in marine and estuarine sediments. Poster presented at the 102nd General Meeting of the American Society for Microbiology. Abstract Q141. May 19-23, Salt Lake City, UT.
- Rhee, S.-K.; **Fennell, D.E.**; Häggbloom, M.M.; and Kerkhof, L.J. **2002.** Detection of DNA fragments containing motifs of reductive dehalogenase gene in a sulfidogenic 2-bromophenol-degrading consortium enriched from estuarine sediment. Poster presented

at the 102nd General Meeting of the American Society for Microbiology. Abstract Q146. May 19-23. Salt Lake City, UT.

Hägglom, M.M.; Ahn, Y.-B.; **Fennell, D.E.**; Kerkhof, L.J.; and Rhee, S.-K. **2001**. Molecular characterization of anaerobic microbial dehalogenating communities in marine and estuarine sediments. Poster presented at the Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP. November 27-29. Washington, DC.

Hägglom, M.M.; Ahn, Y.B.; **Fennell, D.E.**; Kerkhof, L.J.; and Rhee, S.K. **2001**. Enhancement of anaerobic microbial dechlorination of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin in marine and estuarine sediments. Poster presented at the Partners in Environmental Technology Technical Symposium and Workshop sponsored by SERDP and ESTCP. November 27-29. Washington, DC.

Carroll, A.B.; **Fennell, D.E.**; Anguish, T.W.; Gossett, J.M.; and Zinder, S.H. **2000**. Molecular characterization of TCE-contaminated sites. Poster presented at the 100th General Meeting of the American Society for Microbiology. May 21-25, Los Angeles, CA.

Fennell, D.E. and Gossett, J.M. **2000**. TCE dechlorination and competition for donor in aquifer microcosms. Poster presented at the Second International Conference on Remediation of Chlorinated and Recalcitrant Compounds. May 22-25. Monterey, CA.

Carroll, A.B.; **Fennell, D.E.**; Gossett, J.M.; and Zinder, S.H. **1999**. The molecular detection of "*Dehalococcoides ethenogenes*" in PCE- and TCE-contaminated sites by PCR amplification of 16S rDNA. Poster presented at the 99th General Meeting of the American Society for Microbiology. May 30-June 3, Chicago, IL.

Willis, M.; Shoemaker, C.; Gossett, J.; and **Fennell, D.** **1999**. A bioremediation groundwater transport model incorporating competitive biokinetics of dechlorination. Poster presented at the Fifth International *In Situ* and On-Site Bioreclamation Symposium. April 19-22. San Diego, CA.

INVENTION DISCLOSURES

Methods for Remediating Materials Contaminated with Halogenated Aromatic Compounds. U.S. patent application, Serial No. 60/464,348, RU-224, filed April 22, 2003.

INDUSTRY INTERACTION

2008-present Globe Die Cutting Products, Technology assessment
2007-present Earth Pledge, Technical advisor for anaerobic digestion
2006-present Dupont Corporation, Science Advisory Board for Chambers Works
2004 GeoSyntec Inc. and US Geological Survey, Technical review

REVIEWER

Reviewer for Professional Journals

2008-present *Journal of Bacteriology*
2004-present *Applied and Environmental Microbiology*
2004-present *Biotechnology and Bioengineering*
2003-present *Biodegradation*
2002-present *Soil and Sediment Contamination Journal*
2002-present *FEMS Microbiology Ecology*
2001-present *Environmental Science and Technology*

2000-present *Water Research*
2000-present *Bioremediation Journal*

Reviewer of Documents and Grants

Invited Reviewer

2008 Minnesota Sea Grant
2005 U.S. EPA National Risk Management Research Laboratory, GWESR [Document Review]
2005 Texas Sea Grant
2004 National Science Foundation, Microbial Interactions and Processes Program
2000 Natural Sciences and Engineering Research Council of Canada

Invited Panel Participant

2007 National Science Foundation, Environmental Engineering
2006 U.S. Department of Energy, Environmental Remediation and Science Program
2005 U.S. Environmental Protection Agency, SBIR I

MEMBERSHIPS

Research and Education Memberships

2006-present Equine Science Center, Rutgers University
2005-present Civil and Environmental Engineering, Graduate Faculty, Associate Member, Rutgers University
2003-present Center for Environmental Prediction, Rutgers University
2003-present Environmental Sciences, Graduate Faculty, Rutgers University
2003-2007 Bioresource Engineering, Graduate Faculty, Rutgers University (program disbanded)

Professional Memberships and Committees

2007-present *Sigma Xi*, Rutgers University Chapter, Secretary
2007-2008 Environmental Chemistry Division, American Chemical Society, Member at Large
2006-present American Society of Agricultural and Biological Engineering
2004-present Diversity and Demographics Committee, Association of Environmental Engineering and Science Professors
2003 Distinguished Speaker Committee, Association of Environmental Engineering and Science Professors
2003-present Theobald Smith Society, Local Councilor
2002-present Water Environment Federation
2002-present Association of Environmental Engineering and Science Professors
2000-present American Society for Microbiology
1997-present American Chemical Society

PROFESSIONAL ACTIVITIES

Professional Service

- 2006-2008 Organize hands-on modules for environmental science for the public. "Ag Field Day" the open house for the School of Environmental and Biological Sciences. Rutgers University
- 2005-2007 Panelist Douglass College Science Career Exploration Day
- 2004-2006 Project SUPER
Developed and ran a hands-on workshop for entering Douglas College Freshmen women attending the Douglass Project for Women in Math, Science and Engineering Orientation, Rutgers University
- 2003 New Jersey Water Environment Association Annual Meeting
Judge, Student Poster Competition, May 2004, Atlantic City, NJ
- 2001 Sixth International *In Situ* and On-Site Bioremediation Symposium
Reviewer, Student Paper Competition, May 2001, San Diego, CA
- 1998 American Geophysical Union Spring Meeting
Judge, Student Poster Competition, May 1998, Boston, MA

Certifications/Training

- 2005 NSF Summer Institute on Nanotechnology, Biotechnology and Sustainable Engineering
- 2005 Rutgers University President's Traveling Faculty Seminar
- 2003 Bioremediation System Design Using Visual MODFLOW and RT3D, Battelle Bioremediation Symposium
- 2003 The Triad Approach, New Jersey Department of Environmental Protection
- 2001 Practical Reactive Transport Modeling For Evaluating *In Situ* Bioremediation, Battelle Bioremediation Symposium
- 1998 U.S. EPA. Hazardous Materials Incident Response Operations Training Course (40 hr HAZWOPER)
- 1997 Certificate of Dutch as a Foreign Language, intermediate level reading and listening
- 1984 Engineer in Training, State of Arkansas, Engineer-Intern Certificate Number 3624

Conference Organization

- 2007 Symposium Organizer with Professor Lisa Totten, Rutgers University for the 234th American Chemical Society National Meeting, Boston MA, August 19-23. Symposium entitled, Fate of Persistent Organic Pollutants in Urban Systems, Division of Environmental Chemistry in conjunction with AEESP.
- 2004 Symposium Organizer with Professor Paige Novak, University of Minnesota for the 228th American Chemical Society National Meeting, Philadelphia, PA, August 22-27. Symposium entitled, Environmental Fate and Treatment of Persistent Halogenated Compounds, Division of Environmental Chemistry in conjunction with AEESP.
- 2002 Conference Co-Organizer with Professors Max Häggblom and Kenneth Lee, Rutgers University for the 34th Mid-Atlantic Industrial and Hazardous Waste Conference September 20-21, Rutgers University, New Brunswick, NJ, USA

Conference Session Moderator

- 2007 Session Moderator for "PCBs and Dioxins" at the Ninth International *In Situ* and On-Site Bioreclamation Symposium, May 6-10, Baltimore, MD
- 2005 Session Moderator for "PCBs and Dioxins" at the Eighth International *In Situ* and On-Site Bioreclamation Symposium, June 1-6, Baltimore, MD
- 2004 Session Moderator for "Environmental Fate and Treatment of Persistent Halogenated Compounds: Distribution and Fate in Natural Environments", Division of Environmental Chemistry in conjunction with AEESP, the 228th American Chemical Society (ACS) National Meeting, August 22-27, Philadelphia, PA
- 2004 Session Moderator for "Environmental Fate and Treatment of Persistent Halogenated Compounds : Biotransformation and Treatment", Division of Environmental Chemistry in conjunction with AEESP, the 228th American Chemical Society (ACS) National Meeting, August 22-27, Philadelphia, PA
- 2003 Session Moderator for "Enhanced Reductive Dechlorination II" at the Seventh International *In Situ* and On-Site Bioreclamation Symposium, June 1-6, Orlando, FL
- 2001 Session Moderator for "Enhanced Reductive Dechlorination II" at the Sixth International *In Situ* and On-Site Bioreclamation Symposium, June 4-7, San Diego, CA
- 1999 Session Moderator for "Enhanced Anaerobic Dechlorination" at the Fifth International *In Situ* and On-Site Bioreclamation Symposium, April 19-22, San Diego, CA

University Service

- 2006-present Diversity Committee, School of Environmental and Biological Sciences
- 2006-2007 Seminar Committee, Rutgers Energy Institute
- 2005-present Recruitment and Outreach Committee, Department of Environmental Sciences
- 2003-2006 Reporter, Department of Environmental Sciences
- 2003 Faculty Search Committee, Department of Environmental Sciences
- 2003-present Ad-Hoc Co-Organizer in bringing the American Association of Environmental Engineering and Science Professors Annual Distinguished Speaker to a Joint Princeton-Rutgers Seminar (with Professor Catherine Peters of Princeton University).
- 2002-present Bioenvironmental Engineering Curriculum Committee

TEACHING AND MENTORING

Rutgers University

Courses Taught

- 2007-present 11:375:201 Biological Concepts in Environmental Science (33%)
- 2003-present 11:375:302 Water and Wastewater Treatment (100%)
- 2003-present 16:375:504 Water and Wastewater Treatment (100%)
- 2002-present 11:117:413 Unit Processes in Bioenvironmental Engineering (100%)
- 2002-present 11:117:414 Unit Processes in Bioenvironmental Engineering Lab. (100%)
- 2001 11:126:394 Applied Microbiology (50%)

Course Contributor

- 2004 11:375:310 Analytical Environmental Chemistry Laboratory

2002-present 11:117:100 Introduction to Bioenvironmental Engineering
 2002-present 14:440:100 Freshman Engineering Orientation
 2001-present 16:375:529 Biodegradation and Bioremediation
 2001 11:126:405 Microbial Ecology
 2000 11:126:405 Microbial Technology

Cornell University

Course Contributor

1998-1999 Chemistry for Environmental Engineers
 1998-1999 Environmental Quality Engineering
 1998-1999 Microbiology for Environmental Engineers
 1995 Environmental Quality Engineering (teaching assistant)
 1993 Environmental Quality Engineering (teaching assistant)

Graduate Students

Major Thesis/Dissertation Advisor

2008-present Xian Liu, Ph.D. Student, Environmental Sciences. Project: Bioammonia for Hydrogen Production. Matriculating Fall 2008.
 2007-present Brian Wartell, M.S. Student, Environmental Sciences. Project: Bioenergy Production from Combined Waste Food and Equine Stall Waste: Feasibility and Response of Microbial Community.
 2007-present Yun Li, Ph.D. Student, Environmental Sciences. Project: Combined Biological and Physical-Chemical Degradation of Aniline and Parachloroaniline.
 2006-present Jennifer Loudon, M.S. Student, Environmental Sciences. Project: Bioreactor Landfills—Dehalogenation and Detection of Dehalogenating Bacteria.
 2006-present David Babson, Ph.D. Candidate, Environmental Sciences. Project: Bioreactor Landfills—Operation and Biogeochemistry. Passed qualifying exam Spring 2008.
 2006-2007 Wen Liu, M.S. Student, Environmental Sciences. Project: Dechlorination with Bimetallic Catalytic Particles. M.S. 2007.
 2003-2006 Matthew Giacalone, M.S. Student, Environmental Sciences. Project: Polybrominated Diphenyl Ether Flame Retardants in Sewage and Sludges. M.S. 2006.
 2003-present Eun-Kyeu Son, Ph.D. Candidate, Environmental Sciences. Project: Bacterial Degradative Processes in Groundwater and the Atmosphere. Passed qualifying exam Summer 2005. Expected Ph.D. 2008.
 2002-2007 Fang Liu, Ph.D. Environmental Sciences. Project: Dehalogenation of Polychlorinated Dibenzo-*p*-Dioxins and Polychlorinated Dibenzofurans. Ph.D. 2007. Currently a Post-doctoral Associate at Cornell University.

Committee Member

2004-2008 Karen Pesce, Ph.D. Candidate, Environmental Sciences. Project: Novel Genes Involved in Biodegradation of Phenanthrene. Ph.D. Qualifying Examination Committee Member and Ph.D. Dissertation Committee Member. Ph.D. 2008.
 2008 Nora Lopez, Ph.D. Student, Environmental Sciences. Ph.D. Qualifying Examination Committee Member.

- 2007 Yingjun Ma, Ph.D. Student, Environmental Sciences. Ph.D. Qualifying Examination Committee Member.
- 2007 Hui Lui, Ph.D. Student, Environmental Sciences. Ph.D. Qualifying Examination Committee Member.
- 2006 Steven Yergeau, Ph.D. Student, Environmental Sciences. Ph.D. Qualifying Examination Committee Member.
- 2006 Wenyi Zhu, Ph.D. Student, Environmental Sciences. Ph.D. Qualifying Examination Committee Member.
- 2006 Andy Sandy, Ph.D. Student, Environmental Sciences. Ph.D. Qualifying Examination Committee Member.
- 2005-present Heyreoun An, Ph.D. Candidate, Environmental Sciences. Project: Detection and Enumeration of Bacterial Bioaerosols. Ph.D. Qualifying Examination Committee Member and Ph.D. Dissertation Committee Member.
- 2005 Sung Won Yoon, Ph.D. Student, Environmental Sciences. Ph.D. Qualifying Examination Committee Member.
- 2005 Taweechai (Chai) Jiaranaikhajorn, M.S. Bioresource Engineering. Project: Effect of Kerogen Maturation on the Rate of Phenanthrene Sorption. M.S. Thesis Committee Member. M.S. 2005.
- 2005 Haining Cindy Chiang, Ph.D. Student, Environmental Sciences. Ph.D. Qualifying Examination Committee Member.
- 2002-2004 Piyapawn Somsamak, Ph.D. Environmental Sciences. Project: Anaerobic Transformation of Methyl *tert*-Butyl Ether. Ph.D. Dissertation Committee Member. Ph.D. 2004.
- 2004 Archil Zarnedze, Ph.D. Student, Environmental Sciences. Ph.D. Qualifying Examination Committee Member.
- 2004 Feng Qiao, Ph.D., Environmental Sciences. Ph.D. Qualifying Examination Committee Member. Ph.D. 2006.
- 2003 Dawn Mason, M.S. Student, Bioresource Engineering. Project: Microbial Adherence in Bioaugmentation: The Biological and Physicochemical Factors. M.S. Thesis Committee Member. M.S. 2003.
- 2002 E. Jane Pavlik, Ph.D., Molecular and Biosciences. Ph.D. Qualifying Examination Committee Member. Ph.D. 2006.

Undergraduate Student Researchers

- 2008-present Jason Thomas, Biotechnology undergraduate researcher. Project: Activity of bacteria under simulated cloud water conditions.
- 2008 Jared Brisman, Bioenvironmental Engineering undergraduate researcher. Project: PCB dechlorination in sediments.
- 2007-present William Zupko, Middlesex County Community College, NJ Star Program. Project: PCB dechlorination in sediments.
- 2007-present Bryan Schwab, Bioenvironmental Engineering undergraduate researcher. Projects: Anaerobic digestion of horse manure; Activity of bacteria in air. [Aresty Research Funding](#).

- 2007-present Kathleen Kang, Bioenvironmental Engineering undergraduate researcher. Projects: Anaerobic digestion of horse manure; Biodegradation of aniline and parachloroaniline in groundwater. Entering Stanford University as a M.S. student, Fall 2008.
- 2007 Jeffery Alt, Bioenvironmental Engineering undergraduate researcher. Project: Anaerobic digestion of horse manure.
- 2006 Angelica Cardon, Environmental Sciences undergraduate researcher. Project: Detection of bacteria in air.
- 2006-2007 Robin George, Biomedical Engineering undergraduate researcher. Project: Anaerobic digestion of horse manure.
- 2006 Jenna Ciano, Biological Sciences undergraduate researcher. Project: Effect of carbon nanotubes on microbial processes.
- 2005-2006 Danielle Amari, Bioenvironmental Engineering undergraduate researcher. Project: Dechlorination of PCE and PCDD/Fs.
- 2005-2006 Alexandra Caluseriu, Bioenvironmental Engineering undergraduate researcher. Project: Dechlorination of PCE in groundwater.
- 2005 Kevin D'Egidio, Bioenvironmental Engineering undergraduate researcher. Project: Fate of PBDEs in wastewater treatment plants.
- 2004-2006 Jillian Thompson, Bioenvironmental Engineering undergraduate researcher. Project: Effect of heavy metals on reductive dechlorination. Rutgers Undergraduate Research Fellow. Currently a M.S. student at Rutgers University.
- 2003-2006 David Berry, Bioresource Engineering undergraduate researcher. Project: Characterization of bioaerosols in occupational and controlled agricultural spaces. (co-advised with Professor Gediminas Mainelis). Rutgers Undergraduate Research Fellow. Currently a Ph.D. student at the University of Michigan.
- 2002-2003 Christopher Hopp, Chemistry undergraduate researcher. Project: Effect of heavy metals on reductive dechlorination.

High School Researchers

- 2007 Bryan Schwab, Anaerobic Digestion of Horse Waste. Currently an undergraduate Bioenvironmental Engineering sophomore at Rutgers University.
- 2006-2008 Yanting Wang, Anaerobic digestion optimization. Matriculation to Cornell University, Fall 2008.
- 2005 Stacy Ng, Polybrominated biphenyl ethers in sewage. Matriculation to Cornell University, Fall 2005.

RESEARCH SUPPORT

Current

- 2008-present Rutgers Energy Institute, Competitive Graduate Student Fellowship. "Bio-Ammonia for Hydrogen Production" \$24,000, 9/01/2008 to 6/30/2009. **PI: Fennell, D.E.**; Co-PI: Prakash, S.

- 2007-present Academic Excellence Fund, Rutgers University. "Bio-Ammonia for a Portable Hydrogen Generator" \$80,000, 9/1/2007 to 8/31/2008. PI: Prakash, S.; **Co-PI: Fennell, D.E.**
- 2007-2008 New Jersey State Equine Science Initiative. "Horse Manure to Bioenergy Technology for On-Farm or Regional Application" \$50,000, 9/1/2007 to 8/31/2008. **PI: Fennell, D.E.**; Co-PIs: Krumins, V.; Both, A.J.; Obropta, C.; and Westendorf, M.
- 2006-present DuPont Corporation. "Combined Physical-Chemical-Biological Treatment of 4-Chloroaniline and Aniline" \$325,010, 7/01/06 to 6/30/09. **PI: Fennell, D.E.**, Co-PI: Huang, W.
- 2006-present U.S. Department of Education, Grants in Areas of National Needs (GAANN). "Interdisciplinary Graduate Education in Environmental Science and Engineering" \$910,815, 6/01/06 to 5/31/09, PI: Gimenez, D.; Co-PIs: **Fennell, D.E.** and Robock, A.R.
- 2006-present Department of Defense, Strategic Environmental Research and Development Program (SERDP). "Quantifying Enhanced Microbial Dehalogenation Impacting the Fate and Transport of Organohalide Mixtures in Contaminated Sediments" \$1,883,000, 3/2006 to 12/2009, PI: Häggblom, M.M.; Co-PIs: **Fennell, D.E.**; Kerkhof, L.J.; Totten L.A.; and Sowers K.R.
- 2002-present Cooperative State Research, Education, and Extension Service (CSREES) Hatch Grant. "Bioremediation of Dioxin/Furan Contaminated Sediments: Fundamental Studies for Technology Development" 2003, \$1500; 2004, \$1500; 2005, \$1500; 2006, \$1500; 2007, \$500; 2008, pending, **PI: Fennell, D.E.**

Pending

- 2008-present Globe Die Cutting Products. "Variability of Anaerobic Degradation of Paper Samples under Simulated Landfill Conditions—Phase I, Proof of Principle" \$15,871, contract pending, 7/31 to 12/30/2008, **PI : Fennell, D.E.**
- 2008-2009 New Jersey State Equine Science Initiative. "Horse Manure to Bioenergy Technology for On-Farm or Regional Application" \$50,000, 9/1/2008 to 8/31/2009. **PI: Fennell, D.E.**; Co-PIs: Krumins, V.; Both, A.J.; Obropta, C.; and Westendorf, M.

In Preparation

- 2008 North East Regional Sun Grant, Department of Transportation. "Bio-ammonia for Hydrogen Production" \$100,000, two years. **PI: Fennell, D.E.**; Co-PIs: Prakash, S.; Young, L.Y.; and Krumins, V. Proposal submitted in 2007 was favorably reviewed and recommended for funding. In preparation for resubmission.
- 2008 National Science Foundation. "Activity of Bacteria in Air and Cloud Water" \$400,000, three years. **PI: Fennell, D.E.**; Co-PIs: Mainelis, G. and Turpin, B. In preparation.

Completed

- 2006-2008 National Science Foundation, Small Grant for Exploratory Research. "Is Air an Active Microbial Ecosystem?" \$94,811, 7/01/06 to 6/30/08. **PI: Fennell, D.E.**, Co-PI: Mainelis, G.

- 2006-2008 New Jersey Agricultural Experiment Station, Rutgers University EcoComplex and Burlington County NJ. "A Study to Improve the Operation of the Burlington County Bioreactor Landfill and to Investigate Landfill Biogeochemical Processes in this Bioreactor" \$100,000, 7/1/06 to 6/30/08, PI: Ravit, B.; Co-PIs: **Fennell, D.E.** and Krogmann, U.
- 2006-2007 Cook College - NJAES Pre-Tenure Faculty Career Development Award. "Environmental Nanobiotechnology: Use and Effect of Carbon Nanotubes" \$30,000, 6/1/06 to 5/31/07, **PI: Fennell, D.E.**
- 2006-2007 New Jersey State Equine Science Initiative. "Horse Manure to Bioenergy Technology for On-Farm or Regional Application" \$50,000, 9/1/2006-8/31/2007, **PI: Fennell, D.E.**; Co-PIs: Obropta, C. and Westendorf, M.
- 2006-2007 New Jersey Board of Public Utilities. "Waste and Bioenergy Assessment for a State Wide (Bio)energy Master Plan" \$210,841, 9/2006 to 6/2007, PIs: Brennan, M. and Specca, D.; Collaborators: Schilling, B.; Tulloch, D.; Paul, S.; Sullivan, K.; Helsel, Z.; Hayes, P.; Melillo, J.; Simkins, B.; Phillipuk, C.; Both, A.J.; **Fennell, D.**; Bonos, S.; Westendorf, M.; and Brekke, R.
- 2006 Cook College – New Jersey Agricultural Experiment Station Intramural Awards Program, Research Infrastructure Awards. "An Accelerated Solvent Extraction (ASE) System for Analysis of Anthropogenic and Natural Chemicals in Environmental Samples and Biota" \$34,620, 2006. PI: Totten, L.A.; Co-PIs: **Fennell, D.E.**; Häggblom, M.M.; Huang, W.; Kerkhof, L.; Obropta, C.; Sikes, E.L.; and White, L.A.
- 2006 Cook College – New Jersey Agricultural Experiment Station Intramural Awards Program, Research Infrastructure Awards. "Infrastructure Upgrade in Support of Research Productivity in Environmental Sciences" \$17,000, 2006, PI: Young, L.Y.; Co-PIs: **Fennell, D.E.** and 13 others.
- 2005-2007 Hudson River Foundation. "Source Apportionment of Organic Contaminants in the NY/NJ Harbor Estuary" \$95,364, 7/1/2005 to 6/30/2007, PI: Totten, L.A.; Co-PI: **Fennell, D.E.**
- 2005 National Science Foundation Fellowship. "To attend the Summer Institute on Nanotechnology, Biotechnology, and Green Manufacturing for Creating Sustainable Technologies" \$2,350, 2005, **Fennell, D.E.**
- 2003-2006 New York Academy of Sciences. "A Mass Balance on Dioxins and Dioxin-Like Compounds in the NY-NJ Harbor Estuary" \$7000, 6/2003 to 12/2006, **PI: Fennell, D.E.**
- 2005-2006 Rutgers University Research Council Grant. "Anaerobic Dehalogenating Bacteria in Engineered Systems" \$2,500, 6/01/2005 to 5/31/2006, **PI: Fennell, D.E.**
- 2004-2005 New Jersey Water Resources Research Institute. "Fate of Brominated Flame Retardants in New Jersey Wastewater Treatment Facilities" \$30,000, 3/1/2004 to 2/29/2005. **PI: Fennell, D.E.**; Co-PIs: Totten, L.A. and Krogmann, U.
- 2004-2005 Academic Excellence Fund, Rutgers University (Instrumentation Grant). "Triple Quadrupole GC/MS For Analysis of Trace Organics in Environmental Matrixes" \$175,000, 2004-2005. PI: Totten, L.A.; Co-PIs: **Fennell, D.E.**; Reinfelder, J.R.; Huang, W.; Turpin, B.J.; Sherrell, R.M.; Sikes, E.L.; and White, L.A.
- 2004 GeoSyntec Inc. and US Geological Survey. "Design and Installation of a Microbial Biomat—Technical Review" \$4,500, 6/1-8/30/2004. **Fennell, D.E.**

- 2003-2004 New Jersey Agricultural Experiment Station, Planning Grant. "Control of Biological Air Quality in Residential and Occupational Indoor Air Environments", \$4,000, 7/1/2003 to 6/30/2004. **PI: Fennell, D.E.**; Co-PIs: Mainelis, G.; Both, A.J.; Ponessa, J.T.; White, J.A.; Marshall, B.; and Reiss, E.
- 2003 Association of Environmental Engineering and Science Professors Travel Grant to attend the Frontiers in Assessment Methods for the Environment Symposium. \$500, August, 2003. **Fennell, D.E.**
- 2001-2005 Department of Defense, Strategic Environmental Research and Development Program (SERDP). "*In Situ* Enhancement of Anaerobic Microbial Dechlorination of Polychlorinated Dibenzo-*p*-dioxins and Dibenzofurans in Marine and Estuarine Sediments" \$556,975, 3/2001 to 12/2004. PI: Häggblom, M.M.; Co-PIs: **Fennell, D.E.** and Kerkhof, L.J.

Total Research Funding as PI or Co-PI: \$4,519,210

Total External Funding as PI or Co-PI: \$ 3,876,590

Total Research Funding as PI: \$636,436

Research Fellowships and Grants to Students

- 2008-present New Jersey Water Resources Research Institute, Student Grant in Aid. "PBDE'S and other Brominated Compounds in a Bioreactor Landfill" PI: Loudon, J., M.S. student. \$5,000, 2008 to 2009, **Faculty Advisor: Fennell, D.E.**
- 2007-2008 ARESTY Undergraduate Research Awards, Rutgers University. "Comparison of Microbial Communities in Anaerobic Biodigesters" PI: Schwab, B. \$450, 2007-2008, **Faculty Advisor: Fennell, D.E.**
- 2006 USDA CSREES EPA Region 2 Water Quality Coordination Project / NJWRRRI Undergraduate Student Stipend Program. "Enhancing Watershed Protection with Development of Economical Manure Management Technology: Horse Manure to BioEnergy" \$4,000, 5/2006 to 9/2006, **PI: Fennell, D.E.**
- 2006-present New Jersey Water Resources Research Institute, Student Grant in Aid. "Effect of Carbon Nanotubes on Dechlorinating Bacteria" PI: Kannepalli, S. Ph.D. student. \$5,000, 2006 to 2008, **Faculty Advisor: Fennell, D.E.**
- 2005-2006 Rutgers University Undergraduate Research Fellows Award. "Bioremediation of Heavy Metal and Chlorinated Solvent Co-Contaminants in Groundwater" PI: Thompson, J., \$2,000, 7/2005 to 6/2006, **Faculty Advisor: Fennell, D.E.**
- 2005-2006 New Jersey Water Resources Research Institute. Student Grant in Aid "Resistance of Fractured Rock Dechlorinating Bacteria to Pressure from Heavy Metals" PI: Son, E.-K. PhD Student, \$5,000, 3/1/2005 to 2/29/2006. **Faculty Advisor: Fennell, D.E.**
- 2004-2006 New Jersey Water Resources Research Institute. Student Grant in Aid "Investigation of bacterially-mediated dechlorination in dioxin-contaminated sediments in New Jersey" PI: Liu, F., PhD Student, \$5,000, 3/1/2004 to 2/29/2006. **Faculty Advisor: Fennell, D.E.**
- 2004-2005 Rutgers University Undergraduate Research Fellows Award. "Investigation of Ionic Air Cleaner Efficiency in Reducing Indoor Particulates and Bioaerosols" PI: Berry, D. \$1,500, 6/2004 to 6/2005. **Faculty Advisors: Mainelis, G., Fennell, D.E.**

Total Research Funding for Students: \$27,950