

## DENISE M. AKOB

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Florida State University  
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### EDUCATION

- Current* Graduate Student, Department of Oceanography, Florida State University, Tallahassee, Florida. Major Professor: Dr. Joel E. Kostka. Biogeochemical Oceanography.
- 1998-2002* Bachelor of Arts, Biology, St. Mary's College of Maryland, St. Mary's City, Maryland, Undergraduate Research Advisor: Dr. Christopher E. Tanner.

### PROFESSIONAL EXPERIENCE

- 2004-Current* Research Assistantship, Florida State University. Department of Energy Environmental Remediation Sciences Program.
- 2007* Guest Scientist at the Friedrich-Schiller University Jena Graduate School for Alteration and Element Mobility at the Microbe-Mineral Interface with Dr. Kirsten Küsel.
- 2002-2004* Teaching Assistantship, Florida State University (Biological Science I Laboratory and Animal Diversity Laboratory)
- 1999-2002* Teaching Assistant, St. Mary's College of Maryland (Principles of Biology I and Tropical Marine Biology)
- 2002* Internship (NSF-REU), Carnegie Institution of Washington Geophysical Laboratory with Dr. Marilyn L. Fogel, Dr. Matthew Wooller and Dr. Ilka C. Feller. Project: Isotopic Signatures of Mangrove Associated Invertebrates
- 2000-2001* Lab Maintenance Assistant, St. Mary's College of Maryland Coral Reef Wet Lab. Project: Maintenance corals and other invertebrates for coral ecology research.

- 2001 Lab Assistant, Maryland Department of Natural Resources, Piney Point Aquaculture Center. Project: Growth and maintenance of *Zostera marina* seedlings for Potomac River habitat restoration.
- 2000 -2001 Field Assistant, St. Mary's River Project, St. Mary's College of Maryland Project: Water quality monitoring, SAV transplanting, and environmental education.
- 2001 Internship (NSF-REU), University of Delaware College of Marine Studies with Dr. Ilka C. Feller and Dr. S. Craig Cary Project: Identification of Sponge Bacterial Symbionts Using Molecular Biology Techniques.
- 2000 Internship (NSF-REU), Smithsonian Environmental Research Center with Dr. Ilka C. Feller. Project: Organized the All-Hands Meeting of the Tangled Roots Biocomplexity Grant, analyzed data, and participated in forest field research.

## RESEARCH INTERESTS

Biogeochemistry; Microbial Ecology; Environmental Microbiology; Bioremediation

## PUBLICATIONS

- Akob, D.M.**, H.J. Mills, T.M Gihring, L. Kerkhof, J.W. Stucki, A. S. Anastácio, K.-J.Chin, K. Kusel, A. V. Palumbo, D. B. Watson, and J. E. Kostka. 2008. Functional Diversity and Electron Donor Dependence of Microbial Populations Capable of U(VI) Reduction in Radionuclide-Contaminated Subsurface Sediments. *Applied and Environmental Microbiology* 74(10): 3159-3170.
- Blöthe, M., **D.M. Akob**, K. Walter, J.E. Kostka, H.L. Drake, and K. Küsel. 2008. Heterogeneity of Fe(III)-reducing microorganisms in coal-mining lake sediments caused by a pH gradient. *Applied and Environmental Microbiology* 74(4): 1019–1029.
- Akob, D.M.**, H.J. Mills, & J.E. Kostka. 2007. Metabolically active microbial communities in uranium-contaminated subsurface sediments. *FEMS Microbiology Ecology* 59:95-107.
- Diaz, M.C., **D. Akob**, & C.S. Cary. 2004. Denaturing gradient gel electrophoresis of nitrifying microbes associated with tropical sponges. *Proceedings of the 6th International Sponge Conference, Rapallo, Italy, 2002. Bollettino dei Musei e degli Istituti biologici dell'Università di Genova* 68: 279–289.

## RESEARCH GRANTS

- 2001 Sigma Xi Grants-in-Aid of Research. Subject: Ecology. Title: The role of epibiont sponges and their microbial symbionts in the nutrient limited *Rhizophora mangle* stands. Institution: St. Mary's College of Maryland.
- 2001 Caribbean Coral Reef Ecosystem Grant. National Museum of Natural History, Smithsonian Institution. Title: The role of epibiont sponges and their microbial symbionts in the nutrient limited *Rhizophora mangle* stands.

## PROFESSIONAL HONORS AND AWARDS

- 2008 Student Travel Fellowship, 3<sup>rd</sup> Annual ERSP Spring PI Meeting, Lansdowne, VA
- 2007 Student Travel Fellowship, 2<sup>nd</sup> Annual ERSP Spring PI Meeting, Lansdowne, VA
- 2006 Student Travel Fellowship, ERSP Fall PI Meeting, Oak Ridge, TN
- 2006 Student Travel Fellowship, 1<sup>st</sup> Annual ERSP Spring PI Meeting, Warrenton, VA
- 2005 Student Travel Fellowship, NABIR PI Meeting, Warrenton, VA
- 2003 First Place Award, Poster Presentation, Marine Benthic Ecology Meeting
- 2002 Dean's List Spring Semester, St. Mary's College of Maryland
- 2002 Academic Excellence, Multicultural Affairs, St. Mary's College of Maryland
- 2002 First Place Award, Poster Presentation, AGU Ocean Sciences Meeting
- 2001 Rho Gamma Chapter Beta Beta Beta, National Biological Honors Society
- 2000-2002 Research Experience for Undergraduates

## MEETING ABSTRACTS

- Akob, D. M.**, K.-J. Chin, L. Kerkhof, K. Küsel, D. B. Watson, A. V. Palumbo, and J. E. Kostka. 2008. Targeting the Metabolically Active Iron(III)- and Sulfate-Reducing Bacteria with a High Potential for U(VI) Bioimmobilization in Contaminated Subsurface Sediments. DOE 3<sup>rd</sup> Annual ERSP Spring PI Meeting, Lansdowne, VA.
- Kostka, J. E., H. J. Mills, **D. M. Akob**, O. Prakash, D. Swofford, L. Kerkhof, K.-J. Chin, M. Keller, J. Elkins, and J. W. Stucki. 2008. Structure and Function of Subsurface Microbial Communities Affecting Radionuclide Transport and Bioimmobilization. DOE 3<sup>rd</sup> Annual ERSP Spring PI Meeting, Lansdowne, VA.

- Akob, D. M.**, L. Kerkhof, K-J. Chin, K. Küsel, D. B. Watson, A. V. Palumbo, and J. E. Kostka. 2008. Characterization of the Metabolically Active Iron(III)- and Sulfate-Reducing Bacteria in Uranium(VI) Contaminated Subsurface Sediments Using DNA-SIP Analysis. 108<sup>th</sup> General Meeting Abstracts American Society for Microbiology, Boston, MA.
- Ewald, E.-M., **D. M. Akob**, J. E. Kostka, J. Sitte, and K. Küsel. 2008. Effect of Iron Reduction on Heavy Metal Mobilization. 108<sup>th</sup> General Meeting Abstracts American Society for Microbiology, Boston, MA.
- Lee, S., **D. M. Akob**, J. E. Kostka, and K-J. Chin. 2008. Quantification of Functional Gene Expression of Sulfate- and Iron(III)-Reducing Bacteria and Phylogenetic Analysis of Metabolically Active Bacteria in Uranium(VI)-Contaminated Subsurface Sediments. 108<sup>th</sup> General Meeting Abstracts American Society for Microbiology, Boston, MA.
- Mills, H. J., M. Humphrys, **D. Akob**, T.M. Gihring, J. Delgardio, K.J. Chin, and J.E. Kostka. 2008. Quantification of Functional Gene Expression of Fe(III) and Sulfate Reducing Prokaryotes in Salt Marsh Sediments. ASLO Ocean Sciences Meeting, March 2008.
- Kostka, J.E., H. J. Mills, M. Humphrys, **D. Akob**, and K. Chin. 2007. Metabolically Active Iron- and Sulfate-Reducing Prokaryotes in Shallow Subsurface Sediments. International Workshop on Microbial Life under Extreme Energy Limitations "The Starving Majority". Aarhus, Denmark.
- Mills, H. J., **D. Akob**, K. Chin, L. Kerkhof and J. E. Kostka. 2007. Structure and function of microbial communities in radionuclide contaminated subsurface sediments. International Workshop on Microbial Life under Extreme Energy Limitations "The Starving Majority". Aarhus, Denmark.
- Akob, D. M.**, H. J. Mills, L. Kerkhof, and J. E. Kostka. 2007. Determination of the metabolically active microbial groups in contaminated ORFRC subsurface sediments using stable isotope probing (SIP). DOE 2<sup>st</sup> Annual ERSP Spring PI Meeting, Lansdowne, VA.
- Palumbo, A.V., C.W. Schadt, C.C. Brandt, M.S. McNeilly, A.S. Madden, H.J. Mills, **D.M. Akob**, J.R. Tarver, L.A. Fagan, S. Bottomly, S.M. Pfiffner, J.E. Kostka 2006. Methanol Stimulated Uranium Reduction: Does Community Heterogeneity Matter? Eos Trans. AGU, 87(52), Fall Meet. Suppl., Abstract B54B-02.

- Akob, D. M.**, H. J. Mills, L. Kerkhof, and J. E. Kostka. 2006. Determination of the metabolically active microbial groups in contaminated ORFRC subsurface sediments using stable isotope probing (SIP). DOE ERSP Fall PI Meeting, Oak Ridge, TN.
- Kostka, J., H. Mills, **D. Akob**, T. Gihring, L. Kerkhof, K. Chin, J. Stucki, and B. Goodman. 2006. Biostimulation of iron reduction and uranium immobilization: microbial and mineralogical controls. DOE ERSP Fall PI Meeting, Oak Ridge, TN.
- Palumbo, A., C. Schadt, C. Brandt, M. McNeilly, A. Madden, H. Mills, **D. Akob**, L. Fagan, S. Bottomly, S. Pfiffner and J. Kostka. 2006. An Integrated Assessment of Geochemical and Community Structure Determinants of Metal Reduction Rates in Subsurface Sediments. DOE ERSP Fall PI Meeting, Oak Ridge, TN.
- Mills, H.J., **Akob, D.**, Hunter, E., Winch, S., Kerkhof, L., Chin, K.-J. and Kostka, J.E. 2006. Molecular analysis of understudied microbial communities in subsurface and permeable sandy sediments. Integrated Ocean Drilling Program/ Joint Oceanographic Institutes Workshop on Seafloor Life, Vancouver, BC, Canada.
- Akob, D.M.**, H.J. Mills, T.M. Gihring, L. Kerkhof, and J.E. Kostka. 2006. Structure and function of metal- and nitrate-reducing microbial communities in subsurface sediments contaminated with radionuclides. 106<sup>th</sup> General Meeting Abstracts American Society for Microbiology, Orlando, FL.
- Palumbo, A.V., C.C. Brandt, S.M. Pfiffner, L.A. Fagan, A.S. Madden, T. Phelps, J.C. Schryver, M.S. McNeilly, C.W. Schadt, J.R. Tarver, S. Bottomly, H.J. Mills, **D.M. Akob**, J.E. Kostka. 2006. Influence of Geochemistry and Microbial Community Structure on Metal Reduction Rates. DOE 1<sup>st</sup> Annual ERSP PI Meeting, Warrenton, VA.
- Kostka, J.E., H.J. Mills, **D.M. Akob**, T. Gihring, J.W. Stucki, B.A. Goodman, and L. Kerkhof. 2006. Biostimulation of iron reduction and uranium immobilization: Microbial and mineralogical controls. DOE 1<sup>st</sup> Annual ERSP PI Meeting, Warrenton, VA.
- Akob, D.M.**, H.J. Mills, L. Kerkhof, T.M. Gihring, and J.E. Kostka. 2006. Structure and function of metal- and nitrate-reducing microbial communities in the FRC subsurface. DOE 1<sup>st</sup> Annual ERSP PI Meeting, Warrenton, VA.
- Akob, D.M.**, T.M. Gihring and J.E. Kostka. 2005. Microbial activity and community composition in microcosms of FRC Area 2 uranium contaminated subsurface sediment

- and groundwater. DOE NABIR Oak Ridge Field Research Center Workshop, Oak Ridge, TN.
- Mills, H.J., **D.M. Akob**, L. Petrie-Edwards, T.M. Gihring, and J.E. Kostka. 2005. Metabolically-active microbial communities in acidic uranium-contaminated subsurface sediments. DOE NABIR Oak Ridge Field Research Center Workshop, Oak Ridge, TN.
- Mills, H.J., **D.M. Akob**, L. Petrie-Edwards, T.M. Gihring, and J.E. Kostka. 2005. Metabolically active microbial communities in acidic uranium-contaminated subsurface sediments. EC/US Taskforce on Biotechnology and Bioremediation 10<sup>th</sup> year anniversary meeting. Brussels, Belgium.
- Gihring, T.M., L., Edwards, M.E. Dollhopf, **D.M. Akob**, and J.E. Kostka. 2005. The isolation and characterization of novel, metal-reducing microorganisms from uranium- and nitrate-contaminated Subsurface Sediments. 105<sup>th</sup> General Meeting Abstracts American Society for Microbiology, Atlanta, GA.
- Akob, D.M.**, H.J. Mills, L. Petrie-Edwards, and J.E. Kostka. 2005. The “active” microbial communities found in acidic uranium-contaminated subsurface sediments. 105<sup>th</sup> General Meeting Abstracts American Society for Microbiology, Atlanta, GA.
- Akob, D.M.**, H.J. Mills, L. Petrie-Edwards, D. L. Balkwill and J.E. Kostka. 2005. Metabolically active microbial communities in acidic uranium-contaminated subsurface sediments. DOE NABIR PI Meeting, Warrenton, VA.
- Akob, D.M.**, M.L. Fogel, and M.J. Wooller. 2003. Determining the diet of mangrove invertebrates using stable isotope analysis. Marine Benthic Ecology Meeting, Groton, CT
- Akob, D.M.** and I.C. Feller. 2002. The role of epibiont sponges and their microbial symbionts in nutrient limited *Rhizophora mangle* stands. 6<sup>th</sup> International Sponge Conference, Rapallo, Italy.
- Diaz, M.C., **D. Akob**, and C.S. Cary. 2004. Denaturing gradient gel electrophoresis of nitrifying microbes associated with tropical sponges. 6th International Sponge Conference, Rapallo, Italy.
- Akob, D.M.** and I.C. Feller. 2002. The role of epibiont sponges and their microbial symbionts in the nutrient limited *Rhizophora mangle* stands. AGU/ ASLO Ocean Sciences Meeting, Honolulu, HI, *Invited*.

## **INVITED SEMINARS**

- Akob, D.M. 2007. Cold War Biogeochemistry: Nuclear Legacy Waste in the Subsurface of Former East Germany. Florida State University, Department of Oceanography, Chemical Oceanography Seminar October.
- Akob, D.M. 2007. Cold War Biogeochemistry: Nuclear Legacy Waste in the Subsurface of Former East Germany. Florida State University, Department of Biology, Ecology and Evolution Research and Discussion Group. October.
- Akob, D.M. 2007. Structure and Function of Microbial Communities in Uranium Contaminated Subsurface Sediments. Friedrich-Schiller University Jena, Institute for Ecology, June.

## **COURSES COMPLETED AT FLORIDA STATE UNIVERSITY**

Advanced Evolutionary Biology (BSC 5936)  
Advanced Field Biology (PCB 5345)  
Quantitative Methods in Ecology (BSC 5936)  
Density Dependence (BSC 5936)  
Population Ecology (PCB 5425)  
Marine Microbial Ecology (OSB 5636)  
Biogeochemical Field Methods (OCC 5419C)  
Geomicrobiology (OCB 5930)  
Basic Chemical Oceanography (OCC 5050)  
Introduction to Bioinformatics (BSC 5936)  
Phylogeny of Marine Organisms (OCB 5930)  
Marine Primary Production (OCB 5565)  
Estuarine and Coastal Ecology (OCB5930)