Invitation for Public Comment on the List of Candidates for the EPA Science Advisory Board Panel to Provide Advice on Ecological Impacts Associated with Mountaintop Mining and Valley-Fill Operations

November 24, 2009

The U.S. Environmental Protection Agency (EPA) Science Advisory Board (SAB) Staff Office announced in a *Federal Register* Notice (Volume 74, Number 185, Pages 48952 – 48953) published on September 25, 2009 that it was forming an *ad hoc* Panel under the auspices of the SAB to provide independent expert advice on EPA's draft assessment of the ecological impacts associated with mountaintop mining and valley-fill operations. To form the Panel, the SAB Staff Office sought public nominations of nationally recognized and qualified experts in aquatic ecology, aquatic toxicology, hydrogeology, water quality, mining engineering, ecosystem restoration, inorganic chemistry, freshwater ecological risk assessment, and systems ecology.

The SAB Staff Office Director will make the final decision about who will serve on the Panel based on all relevant information. This includes a review of the confidential disclosure form (EPA Form 3110-48) and information gathered by staff and public comments. For the EPA SAB Staff Office, a balanced Panel is characterized by inclusion of candidates who possess the necessary domains of knowledge, the relevant scientific perspectives (which, among other factors, can be influenced by work history and affiliation), and the collective breadth of experience to adequately address the general charge. Specific criteria to be used in evaluating a candidate include: a) scientific and/or technical expertise, knowledge, and experience; b) availability and willingness to serve; c) absence of financial conflicts of interest; d) absence of appearance of a lack of impartiality; e) skills working in committees, subcommittees, and advisory panels; and, for the panel as a whole, f) diversity of, and balance among, scientific expertise, and viewpoints.

We hereby invite comments on the attached List of Candidates that the SAB Staff Office should consider in the formation of this Panel. Comments should be submitted to the attention of Mr. Edward Hanlon, Designated Federal Officer, no later than December 18, 2009. E-mailing comments (hanlon.edward@epa.gov) is the preferred mode of receipt.

Candidates for the Panel to Provide Advice on Ecological Impacts Associated with Mountaintop Mining and Valley-Fill Operations

Adams, William

Rio Tinto, Inc.

Dr. William Adams is currently Chief Adviser for Rio Tinto Inc, in Magna, UT. He holds a B.S. in Biological Sciences from Lake Superior State University, and an M.S. and Ph.D. in Ecotoxicology from Michigan State University. His current responsibility is to manage a corporate global program for site remediation. This includes 9 hardrock mine sites and 50 other non-mining sites where soil or groundwater remediation is required. Dr. Adams has worked on Superfund sites since the mid 1980s. His recent research interests include developing ecotoxicology risk assessment methods for metals, site-specific methodologies for water quality criteria for metals, and development of approaches for assessing hazard of metals. Dr. Adams was a member of the U.S. Environmental Protection Agency (EPA) Science Advisory Board for 10 years and previously served on the EPA Superfund National Advisory Committee for Environmental Policy and Technology. Additionally, he chairs several technical workgroups for the metals industry. Dr. Adams has published 100 papers including 25 papers on metals related to ecological effects and exposure for birds and aquatic life. He has also published papers on methodologies for assessing sediment contaminants. Dr. Adams' recent publications have dealt with approaches for setting site specific water quality standards for copper and selenium. He is currently working on developing biotic ligand models for establishing water quality criteria for aluminum and iron.

Allan, David

University of Michigan

Dr. David Allan is Acting Dean and Professor in the School of Natural Resources and Environment (SNRE) at the University of Michigan (UM). He holds a B.S. (with honors) in Zoology from the University of British Columbia, and M.S. and Ph.D. degrees in Zoology from the University of Michigan. Dr. Allan was a Post-Doctoral fellow in the Department of Biology at the University of Chicago, and then joined the Department of Zoology at the University of Maryland, College Park, where was Professor and Director of Graduate Studies. He joined the School of Natural Resources in 1990, where he was appointed Associate Dean for Academic Affairs in 2007 and Acting Dean in 2008. Dr. Allan's teaching interests are in the ecology of fresh waters, including their conservation, management, and restoration. He also helps lead interdisciplinary, team-taught courses and a UM Minor on Global Environmental Change. Dr. Allan is the author of two widely used text books, Stream Ecology (2007, with M.M Castillo) and Streams: Their Ecology & Life (2001, with C. E. Cushing). His current research investigates the influence of changing land use on river ecosystems, the factors affecting success of stream restoration, and the ecology of freshwater communities. In addition to both local and regional work centered in the Midwest, Dr. Allan's research has taken place at sites in the Rocky Mountains, Southeast Alaska, and Venezuela. His conservation activities include working closely with local watershed councils, and he has served on the Board of American Rivers and the Michigan Chapter of The Nature Conservancy. Dr. Allan has frequently served as a consultant to U.S. Environmental Protection Agency and other agencies on topics related to aquatic ecosystem health. He is active and has held office in several professional societies including the North American Benthological Society, the Society for Conservation Biology and the Ecological Society of America. Dr. Allan is a Fellow of the American Association for the Advancement of Science and 2009 recipient of the Award of Excellence of the North American Benthological Society.

Armstead, Mary M.

Potesta & Associates, Inc.

Dr. Mary Armstead is a Senior Scientist at Potesta & Associates, Inc. in Charleston, WV. She holds a B.S. in Biology from the University of Charleston, an M.S. in Biology from Marshall University in Huntington, WV, and a Ph.D. in Biology from Virginia Tech University with a concentration in aquatic ecotoxicology. At Potesta, Dr. Armstead is responsible for conducting ecological risk assessments, toxicity studies, biomonitoring and bioaccumulation studies for National Pollutant Discharge and Elimination System (NPDES) permitting and the development of remediation, recovery and restoration plans. Dr. Armstead was an instrumental member of the committee that developed the West Virginia Voluntary Remediation and Redevelopment Act (VRRA) Guidance Manual. She previously worked as a consultant for industry and governmental agencies on a variety of projects such as site-specific variance negotiations, watershed restoration and management, toxicity identification and reduction evaluations, sediment toxicity testing, exotic species control, in-situ testing and monitoring, and habitat and biological assessments. Dr. Armstead is a member of the Society of Environmental Toxicology and Chemistry, North American Benthological Society, and the American Society for Surface Mining.

Bain, Mark B.

Cornell University

Dr. Mark Bain is Associate Professor of Systems Ecology in the Department of Natural Resources at Cornell University. He holds a B.S. in Wildlife Resources from West Virginia University, an M.S. in Fisheries Science from Virginia Tech, and a Ph.D. in Fisheries Biology with a concentration in statistics and modeling from the University of Massachusetts. Dr. Bain is a quantitative aquatic biologist and ecosystem scientist that conducts both basic research and studies driven by current management issues. His taxonomic specialties are fish and benthic macroinvertebrates with system expertise in lakes, streams and estuaries. Statistics, modeling, and biological assessment are heavily used in his research and teaching. Dr. Bain's current research is testing complex systems theory in bay and lagoon ecosystems around Lake Ontario, describing the behavior and ecology of sturgeon, planning ecosystem restoration and conservation, and monitoring of invasive pathogens in Great Lakes waters. His environmental policy experience includes ecosystem management, endangered species protection, energy - environment conflicts, watershed conservation, and water needs for environmental services. Dr. Bain's recent published works have covered fish and macroinvertebrates in freshwaters and estuaries, ecosystem analyses and assessment, recovery of endangered species, and restoration of aquatic ecosystems.

Barton, Chris

University of Kentucky

Dr. Chris Barton is an Associate Professor of Forest Hydrology and Watershed Management in the Department of Forestry at the University of Kentucky. He holds a B.S. from Centre College in Danville, Kentucky, an M.S. in Plant and Soil Sciences and a Ph.D. in Soil Science from the University of Kentucky. As a Research Hydrologist with the U.S. Department of Agriculture Forest Service between 1999 – 2003, Dr. Barton's research focused on hydro-chemical processes associated with restoration and remediation of disturbed and/or contaminated areas at the U.S. Department of Energy Savannah River Site, SC. He is currently focusing on work in the areas of ecosystem restoration and remediation primarily in stream and wetland habitats that have been altered by human-use activities. In addition, Dr. Barton is examining improved methods for preventing water quality degradation from logging and mining activities. He is currently serving as the co-Team Leader of the Appalachian Regional Reforestation Initiative's Science Team.

Beaty, Braven

The Nature Conservancy

Dr. Braven Beaty is the stewardship ecologist for the Clinch Valley Program of The Nature Conservancy (TNC) in Abingdon, VA. He holds a B.S. in Biomedical Engineering from Duke University, an M.S. from the School of the Environment of Duke University, and a Ph.D. from the Department of Fisheries and Wildlife Sciences of Virginia Polytechnic Institute & State University. Dr. Beaty's duties at TNC include developing monitoring and conservation strategies for aquatic fauna in the Clinch, Powell, and Holston rivers, identifying and addressing research needs for biotic conservation, serving as liaison and collaborator with academic institutions, providing scientific and stewardship guidance for terrestrial and subterranean ecosystem conservation, serving a lead scientist role for issues related to coal mining, and serving in a leadership role in Clinch Powell Clean Rivers Initiative. Dr. Beaty's prior areas of research include the culture, ecology and environmental physiology of freshwater mussels, and physiological stress responses of channel catfish exposed to sediment-borne polycyclic aromatic hydrocarbons. Since joining TNC, he has served as the primary science advisor to the Clinch Valley Program in southwest Virginia and northeast Tennessee. Dr. Beaty has led the development of a prioritization protocol for land acquisitions, guided the program's technical strategies related to coal mining, helped organize a symposium on coal mining related impacts to the Clinch and Powell rivers, played a key role in starting the Clinch Powell Clean Rivers Initiative (CPCRI), assisted the Colombian Ministry of Environment, Housing and Territorial Development with coal mining related issues, and participated in mussel augmentation efforts. He led the Clinch Valley Program's comprehensive biodiversity conservation planning effort to identify ecological stressors and conservation strategies related to coal mining (active and legacy) by working with staff from the Virginia Department of Mines, Minerals, and Energy, U.S. Office of Surface Mining and Reclamation Enforcement, academia, the coal industry and The Nature Conservancy. Dr. Beaty is a key member of The Nature Conservancy Central Appalachians Energy Team addressing the interaction of coal mining and natural gas development with ecological systems in the central Appalachian states of Tennessee, Virginia, West Virginia, Kentucky, Ohio, Maryland, Pennsylvania, and New York. Dr. Beaty is a member of the Freshwater Mollusk Conservation Society, North American Benthological Society, and Society of Conservation Biology.

Bernhardt, Emily S.

Duke University

Dr. Emily Bernhardt is an Assistant Professor at Duke University in the Department of Biology and the Nicholas School of the Environment. She holds a B.S. in Biology from University of North Carolina Chapel Hill and a Ph.D. in Ecology and Evolutionary Biology from Cornell University. A biogeochemist, Dr. Bernhardt's research program is fundamentally concerned with understanding how nutrient cycles are changing as a result of human accelerated environmental change, and also how (and whether) effective ecosystem management or restoration can reverse these trends. Most of her research is focused on stream and wetland ecosystems within urban and agricultural landscapes. Dr. Bernhardt was the coordinator of the National River Restoration Science Synthesis and served as a member of the Ecological Society of America's Visions committee. She currently serves on the External Advisory Board for the Southeastern Division of Environmental Defense, the Science Advisory Board of the Center for the Environmental Implications of Nanotechnology, and as a consultant to the Sierra Club and the Southern Environmental Law Center on issues related to water quality degradation and river and wetland restoration and mitigation.

Boyer, Elizabeth W.

Pennsylvania State University

Dr. Elizabeth Boyer is an Associate Professor of water resources in the School of Forest Resources at Pennsylvania State University. She serves as the Director of the Pennsylvania Water Resources Research Center, and as Assistant Director of Penn State Institutes of Energy & the Environment. Dr. Boyer holds a B.S. in Geography from Pennsylvania State University, and an M.S. and Ph.D. in Environmental Sciences from the University of Virginia. Prior to her current position, she was on the faculty at the State University of New York at Syracuse (assistant professor) and at the University of California at Berkeley (associate professor). Dr. Boyer's research explores hydrological and ecological processes that affect water quality (e.g., nutrients, major & trace elements, and sediments) and water quantity (e.g., streamflow and water yield) issuing from watersheds. She is particularly interested in how human activities and environmental variability influence conditions and trends in streams, rivers, and estuaries. Her Lab's work aims to provide a scientific basis for design and implementation of land management programs and policies to mitigate the effects of pollution, and to protect, conserve, and restore surface waters. Dr. Boyer has chaired the international Gordon Research Conference on Catchment Science: Interactions of Hydrology, Biology and Geochemistry. She is a member of the American Geophysical Union, American Water Resources Association, American Society of Limnology and Oceanography, and the Ecological Society of America.

Brinson, Mark M.

East Carolina University

Dr. Mark Brinson is Distinguished Professor of Biology at East Carolina University, Greenville, NC. He holds a B.S. from Heidelberg College in Ohio, an M.S. from the University of Michigan, and a Ph.D. from the University of Florida. He has taught courses in wetland ecology and management, ecosystem ecology, and restoration ecology, among others. Dr. Brinson's current research interests include the relationship of hydrology and hydroperiod to wetland ecosystem structure and function, classification and functional assessment of wetlands and riparian zones, and the response of coastal wetlands to rising sea level. He is a PI at the Virginia Coast Reserve site of National Science Foundation's Long Term Ecological Research program and was a Fulbright Fellow in Argentina for a semester in 2002. Dr. Brinson served as president of the Society of Wetland Scientists and received the society's Merit Award in 1998. He was a member of the National Research Council (NRC) committee on Wetland Characterization, and chaired the NRC committee on Riparian Zones. He has provided testimony before U.S. Senate and House committees on the identification of wetlands.

Buchwalter, David

North Carolina State University

Dr. David Buchwalter is an assistant professor and coordinator of the Environmental Concentration within the Department of Environmental and Molecular Toxicology at North Carolina State University. In addition, he is an associate faculty member in the Department of Entomology at NC State. Dr. Buchwalter holds a B.S. in Zoology from the University of Massachusetts, Amherst, an M.S. in Toxicology from Oregon State University, and a Ph.D. in Environmental & Molecular Toxicology from Oregon State University. He received a National Research Council (NRC) post doctoral fellowship to study trace metals with Dr. Samuel Luoma at the U.S. Geological Survey in Menlo Park, CA for three years prior to beginning his current position. He maintains an active research program focused on the physiology and toxicology of metals and other inorganics, primarily with aquatic insects as the key faunal group of interest. Dr. Buchwalter's current projects include the development of a parthenogenetic mayfly as an ecotoxicological model organism, a National Science Foundation-funded comparative/evolutionary physiology study, and evaluation of how water chemistry changes associated with mountaintop removal coal mining affect the physiology of aquatic insects. He has published over 18 research articles (including a 2008 Proceedings of the National Academy of Sciences publication) and 4 book chapters. Dr. Buchwalter is an active member of the Society of Environmental Toxicology and Chemistry, the North American Benthological Society, and the Society for Integrative and Comparative Biology, and a regular reviewer for journals such as Environmental Science and Technology and Aquatic Toxicology.

Burger, James

Virginia Polytechnic Institute & State University

Dr. James Burger is Garland Gray Professor Emeritus of Forestry and Soil Science in the Department of Forest Resources and Environmental Conservation at Virginia Polytechnic Institute and State University. He holds a B.S. in Agronomy and an M.S. in Forestry from Purdue University, and a Ph.D. in Soil Science from the University of Florida, Gainesville. Dr. Burger's current research interests include restoration ecology, mined land reclamation, forest soil productivity and quality, and agroforestry. He has taught courses in the areas of Forest Soils and Ecology, Forest Hydrology, Silviculture, Agroforestry, and Research Methods. Dr. Burger's recent research projects include Restoring Sustainable Forests on Appalachian Mined Lands for Wood Products, Renewable Energy, Carbon Sequestration, and Other Ecosystem Services; Sustaining the Productivity of Managed Forests; Soil Nitrogen and Root Growth Dynamics in Short-Rotation Hardwood Crops; Acid Deposition Effects on Native Hardwood Forests; and Agroforestry Systems for the Appalachian Region. He has published widely on topics including reforestation of mined lands, forest hydrology, logging effects on soil productivity, and forest management effects on water quality. He was President of the American Society for Mining and Reclamation, a recipient of the William T. Plass Award from the American Society for Mining and Reclamation for career contributions to reclamation and restoration science, a recipient of Virginia Tech's "Research Award of Merit" for Research Excellence, a Fellow of the Soil Science Society of America, an Associate Editor for the Soil Science Society of America Journal, Chair of the Soil Science Society of America's Forest and Range Soils Division, on the Soil Science Society of America's Board of Directors, Chair of the America Society for Mining and Reclamation's Forestry and Wildlife Technical Division , and a member of the Advisory Committee for the International Association of Land Reclamation. He is currently the Science Team co-leader of the Office of Surface Mining's Appalachian Regional Reforestation Initiative. He has been involved with mined land reclamation research for 30 years.

Burns, Dana

Potesta & Associates, Inc.

Mr. Dana Burns is Vice President of Engineering at Potesta & Associates, Inc. in Charleston, West Virginia. He holds a B.S. and M.S. in Civil Engineering from West Virginia University. Mr. Burns has over 30 years of experience with civil, geotechnical, mining, and environmental engineering projects, including management and supervision of projects to support coal mining in the Appalachian coal fields. He has extensive experience with pre-acquisition reclamation liability assessments, Phase I Environmental Site Assessments, mine permitting, reclamation of abandoned mine lands, development of materials handling plans to avoid the formation of acid mine drainage from potentially toxic spoil, as well as regulatory compliance issues. Mr. Burns has developed reclamation plans for over 60 projects including landslides, mine fires, acid mine drainage, mine subsidence, refuse piles, water supply systems, and asbestos abatement. He is also involved with projects identifying the presence of selenium at mine sites and the field monitoring of different treatment technologies. Mr. Burns is a member of the American Society of Civil Engineers, National Society of Professional Engineers and the Society of American Military Engineers, and is a registered professional engineer in West Virginia and Illinois.

Burton, G. Allen Jr.

University of Michigan

Dr. Allen Burton is Professor and Director of the Cooperative Institute for Limnology and Ecosystems Research in the School of Natural Resources and Environment at the University of Michigan. He holds a B.S. in Biology and Chemistry from Ouachita Baptist University, an M.S. in Microbiology from Auburn University, and a Ph.D. in Environmental Science from the University of Texas at Dallas. Dr. Burton was previously a Professor of Environmental Sciences and Chair of the Department of Earth and Environmental Sciences at Wright State University. His areas of expertise and research interests include: methods to identify significant effects and stressors in contaminated aquatic systems; ecosystem risk assessments evaluating multiple levels of biological organization; and integrating laboratory and in situ toxicity tests with habitat characterizations and physicochemical profiles to determine the role of chemical contaminants among multiple stressors. Dr. Burton was the Brage Golding Distinguished Professor of Research at Wright State University. He has served on the Editorial Board of Aquatic Ecosystem Health & Management and on Chemosphere, was Co-Editor of Ecotoxicology and Environmental Restoration, and has served on numerous other national and international scientific committees, review panels and editorial boards. Dr. Burton will serve as President of the World Council of the Society of Environmental Toxicology and Chemistry.

Castendyk, Devin

State University of New York, Oneonta

Dr. Castendyk is the Director of the Water Resources Program and Assistant Professor in the Earth Sciences Department at the State University of New York, College at Oneonta (SUNY Oneonta). He holds a B.A. in Geology from Hartwick College in Oneonta, NY, an M.S. in Geology from the University of Utah, and a Ph.D. in Environmental Science from the University of Auckland, New Zealand. Dr. Castendyk researches abandoned open-pit coal and precious metal mines which have flooded to form lakes, called pit lakes. His work focuses on pit lake characterization, water quality prediction, and post-mining remediation strategies in addition to the overall geochemistry of mine-impacted water, and numerical modeling of hydrologic, limnologic, and geochemical processes at mine sites. He serves on the Steering Committee of the Acid Drainage Technology Initiative, Metal Mining Sector (ADTI-MMS), and serves as Chair of the ADTI-MMS Pit Lake Workbook Committee which recently published a 300-page, consensus-reviewed guidance manual on pit lake technology. Dr. Castendyk previously served as Chapter Champion (author) for the Global Acid Rock Drainage Guide produced by Golder Associates Inc. in Redmond, WA; a Hydrogeochemist for Golder Associates Inc. in Takapuna, New Zealand; a Scientist for Parsons Engineering Science in South Jordan, UT; and an Exploration Geologist for Kennecott Exploration, Petersburg, AK. He received a U.S. Fulbright Grant for graduate study in New Zealand, and recently received the 2009 Siegfried Award for Academic Achievement, the highest award given by SUNY Oneonta to junior faculty. Dr. Castendyk is a member of the International Mine Water Association (IMWA), the International Association of Geochemistry (IAGC), and the Hydrogeology Division of the Geological Society of America (GSA).

Castle, Michael

Strategic Solutions, LLC and Castle Consulting Group

Mr. Michael Castle is president of Strategic Solutions, LLC in Hurricane, WV. He holds a B.S. in Mining Engineering from University of Kentucky, an M.S. in Environmental Science from West Virginia Graduate College, an MBA from Northern Kentucky University, and a J.D. from Salmon P. Chase College of Law, Northern Kentucky University. Mr. Castle has more than twenty-five years of progressive experience in all areas of business operations, with a focus on the coal industry. His private industry background includes various positions including engineer, surface mine foreman, surface mine superintendent, operations manager, company president, small business owner/operator, legal counsel, associate general counsel and director of regulatory affairs, and environmental and business consultant. During his private industry career, Mr. Castle has developed experience in management, administration, operations, sales, engineering, environmental engineering and compliance, regulatory compliance and policy, environmental science and planning, administrative and environmental law, project development, project management, project evaluation, strategic planning, budgeting, cost containment, and company restructuring. Many of the positions he has held have involved working with the science, technical, environmental, and regulatory compliance aspects of various projects and operations and has required working with administrative and regulatory agencies such as the U.S. Environmental Protection Agency (EPA), U.S. Mine Safety and Health Administration, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, West Virginia Department of Natural Resources, West Virginia Department of Environmental Protection, and other similar state agencies in Kentucky and Virginia. Mr. Castle has developed expertise in many of the environmental and regulatory laws included the Clean Water Act (CWA), Surface Mining Control and Reclamation Act (SMCRA), National Environmental Policy Act, Resource Conservation and Recovery Act (RCRA), and the Administrative Procedures Act. In addition to private industry, he has also held positions in the government sector including serving as the Associate Regional Administrator for Region III of EPA: the Commissioner of the West Virginia Bureau of the Environment, a cabinet level position, where he was responsible for the implementation and enforcement of all regulatory programs administered by the Division of Environmental Protection including the state versions of the CWA, SMCRA, RCRA, the Clean Air Act, and other programs. Mr. Castle also served as an intern with the Office of Surface Mining where he worked closely with attorneys and senior officials in developing policy and legal strategy relating to the “Bragg” litigation and mountaintop mining issues. He has taught environmental law, as an adjunct professor, for Marshall University’s graduate program and is a member of the Kentucky Bar. Mr. Castle’s most rewarding accomplishment is serving his country as a U.S. Army veteran and later as an officer in the Kentucky National Guard.

Cherry, Don

Virginia Polytechnic Institute & State University

Dr. Donald Cherry is Professor of Zoology/Ecotoxicology in the Department of Biological Sciences at Virginia Polytechnic Institute and State University. He holds a B.S in Biology with a minor in Secondary Education from Furman University, Greenville, SC, and an M.S. in Zoology and Radioecology and a Ph.D. in Zoology, Aquatic Ecology, and Environmental Health from Clemson University. Dr. Cherry's research has encompassed several major areas in Aquatic Ecotoxicology from power plant effluent effects upon aquatic food chains; fish preference/avoidance behavior to heated, chlorinated discharges and acidic-alkaline pH excursions; determining fly ash effluent impacts upon aquatic receiving systems; controlling biofouling impacts of Asian clams and zebra mussels upon industrial facilities and evaluating the fate/effects of selected molluscicides released into riverine systems; conducting comprehensive evaluations of pulp and paper mill effluents upon aquatic receiving systems; and developing in-situ bioassay procedures using Asian clams to determine impact sources of industrial and coal mining effluents released into several river watersheds. In the past 15 years, he has focused his efforts on evaluating recovery/restoration ecology of damaged streams impacted by active coal mining effluents and acid mine drainage from abandoned minelands using a watershed-level approach; and studying the ecological impacts of mountaintop mining with valley-fill operations using benthic macroinvertebrate structural studies in streams and bioassay experiments conducted in-situ and in the laboratory to develop ecotoxicological ratings at selected sampling sites. In so doing, Dr. Cherry has successfully directed 47 graduate students to their M.S. or Ph.D. degrees plus 14 post-docs and generated ~215 papers in peer-reviewed journals, ~ 235 published abstracts/conference proceedings and ~330 industrial reports of limited distribution.

Clements, William H.

Colorado State University

Dr. William Clements is a Professor in the Department of Fish, Wildlife and Conservation Biology and a faculty advisor in the Graduate Degree Program in Ecology at Colorado State University (CSU). He holds a B.S and M.S. in Biology from Florida State University, and a Ph.D. in Zoology from Virginia Polytechnic Institute and State University. Dr. Clements has been on the faculty of the Colorado State University since 1989. Dr. Clements' research interests focus primarily on community and ecosystem responses to contaminants. He is especially interested in questions that address responses to multiple perturbations and interactions between contaminants and global climate change. Dr. Clements is the author/co-author of two textbooks (Community Ecotoxicology and Ecotoxicology: a Comprehensive Treatment) and has published numerous peer-reviewed papers and book chapters in ecotoxicology. At CSU he teaches graduate and undergraduate courses in ecology, experimental design, and pollution ecology. Dr. Clements is active in several professional societies including the Society of Environmental Toxicology and Chemistry (SETAC) and the North American Benthological Society (NABS). He previously chaired the Executive Committee for NABS, served on the Board of Directors of SETAC and received the Presidential Citation from this Society in 2006. Dr. Clements currently serves as an Associate Editor of the Journal of the North American Benthological Society (1997-present) and has previously served on the Editorial Board of SETAC (1995-1997), as a Guest Editor for the Journal of Ecosystem Stress and Recovery (2000) and Ecological Applications (2007). At the national level, he has served on a Department of Interior Federal Advisory Committee and on two National Academy of Sciences NRC committees investigating effects of dredging operations at U.S. Environmental Protection Agency Superfund Sites and effects of coalbed methane development in the West.

Daniels, W. Lee

Virginia Polytechnic Institute & State University

Dr. W. Lee Daniels is Professor of Environmental Soil Science at Virginia Tech in Blacksburg, Virginia. He holds a B.S. degree in Forestry, an M.S. degree in Soil Science, and a Ph.D. in Soil Geomorphology from Virginia Tech University. Dr. Daniels' areas of specialization include stabilization and restoration of disturbed lands including areas disturbed by mining, road building, waste disposal, urbanization and erosion. In particular, he has focused his research and consulting experience in mine reclamation and wetland impact mitigation. Dr. Daniels' major coal mining research focus areas have included coal mine spoil handling and placement, prevention of acid mine drainage from coal waste fills, management of coal combustion products in mining and agricultural environments, mine spoil weathering and TDS elution. His wetland research has focused on comparative studies of created vs. natural wetlands and wetland water budgeting. Dr. Daniels' teaching programs at Virginia Tech focus on soil geomorphology and landscape analysis with particular emphasis on the relationships among surficial geology, hydrology, soil patterns and long-term landscape evolution processes. His major awards include the Reclamation Researcher of the Year by the American Society for Surface Mining and Reclamation in 1993, and the U.S. Environmental Protection Agency's National Biosolids Utilization Research Award in 2000.

David, Mark

University of Illinois at Urbana-Champaign

Dr. Mark David is a Professor in the Department of Natural Resources and Environmental Sciences at the University of Illinois at Urbana-Champaign (UIUC), where he has been on the faculty since 1985. He holds a B.S. in Forest Science from the Pennsylvania State University, an M.S. in Forest Biogeochemistry from the University of Maine, and a Ph.D. in Environmental Science from the State University of New York, College of Environmental Science and Forestry. Dr. David's research is focused on the biogeochemistry of nutrients in agricultural, forested, and aquatic ecosystems. He has conducted interdisciplinary research to study complex systems from a variety of approaches. Dr. David's recent and current research program is focused on agricultural and aquatic biogeochemistry of nitrogen and phosphorus, including linkages between agricultural and aquatic systems. He has studied nitrogen and phosphorus transformations and export at agricultural field, watershed, and regional scales; examined the use of wetlands for reducing downstream nutrient losses; and has been evaluating the interactions of nutrients (nitrogen and phosphorus), algal growth, and dissolved oxygen with resulting impacts on biotic integrity in Illinois streams and rivers. Dr. David has authored or co-authored more than 115 refereed journal articles, and many oral and poster presentations at national meetings, along with other technical and non-technical publications. His research is highly cited: he was named as an Institute for Scientific Information (ISI) Highly Cited Researcher in Ecology and Environment. Dr. David has been elected as a Fellow in the Soil Science Society of America, the American Society of Agronomy, and the American Association for the Advancement of Science. He has served as an associate editor for both the Soil Science Society of America Journal and for the Journal of Environmental Quality; has frequently served as a panel member for review of proposals for funding from the U.S. Department of Agriculture, National Science Foundation (NSF), and U.S. Environmental Protection Agency (EPA); and has served on review teams to assess departmental and programmatic activities at several other universities. Dr. David recently served on the EPA Science Advisory Board (SAB), Hypoxia Advisory Panel that conducted a reassessment of hypoxia in the Gulf of Mexico, including nutrient sources from the Mississippi River basin, as well a consultant to the SAB Ecological Processes and Effects Committee review of Nutrient Criteria Guidance. National and state competitive grants have supported his recent biogeochemistry research in Illinois and the Midwest. This includes grants from U.S. Department of Agriculture Cooperative State Research, Education, and Extension Service (CSREES) National Integrated Water Quality Program, NSF Biocomplexity in the Environment Coupled Human/Natural Cycles, the Illinois Council for Food and Agricultural Research, and work on bioenergy crops and the environment through the Energy Biosciences Institute.

Dick, Warren A.

Ohio State University

Dr. Dick is Professor of Soil and Environmental Chemistry in the School of Environment and Natural Resources at Ohio State University. He holds a B.S. in Chemistry from Wheaton College, and an M.S. and Ph.D. in Soil Science specializing in Biochemistry from Iowa State University. Dr. Dick's research has focused on cycling of carbon, nitrogen and sulfur in soils. He has been active since about 1990 on research related to beneficial land application uses of coal combustion products. This has included using clean coal combustion products for mineland reclamation and flue gas desulfurization (FGD) gypsum for agricultural use. Dr. Dick teaches a course on Soil and Environmental Biochemistry and has advised more than 20 graduate students. He is on the Ohio Agricultural Research and Development Center's speakers list and has given talks to numerous local, national and international audiences. Dr. Dick has been active in his profession and has served as Editor of the *Journal of Environmental Quality* and Editor-in-Chief of the Soil Science Society of America and the American Society of Agronomy. He is a Fellow of both the American Society of Agronomy and the Soil Science Society of America.

Dinger, James

Kentucky Geological Survey

Dr. James Dinger is Head of the Water Resources Section of the Kentucky Geological Survey, University of Kentucky. He holds a B.S. in Geology from Juniata College, PA, an M.S. in Geology from the University of Vermont, and a Ph.D. in Hydrology from the University of Nevada-Reno. Dr. Dinger is responsible for the development, continuity, and agency interaction concerning water-resources programs in Kentucky. His topical areas of interest include groundwater; fracture control; coal-field hydrology; agricultural water quality; karst; and databases. During the 1980's he taught week-long short courses to engineering, geologic, and restoration professionals focused on groundwater quality and flow issues related to surface mining with respect to provisions of PL95-87. In the 1990's he directed an eight-year study of groundwater conditions and spoil subsidence as they developed on a 1000-acre mountain-top-removal coal mine, and a study of the effects of a longwall mining operation on groundwater flow and quality in the Eastern Kentucky Coal Field. In the past several years he has co-directed with a state regulatory agency a reconnaissance study for selenium occurrence in surface waters originating from surface-mined areas, and coordinated sampling of surface waters for nutrient loading, both in the Eastern Kentucky Coal Field. Dr. Dinger is a Professional Geologist in Kentucky and Indiana, and a member of the Geological Society of America and Kentucky Society of Professional Geologists.

Eighmy, T. Taylor

Texas Tech University

Dr. Taylor Eighmy is the Vice President for Research at Texas Tech University (TTU) in Lubbock, TX. He holds a B.S. in Biology from Tufts University, and an M.S. and Ph.D. in Civil Engineering from University of New Hampshire. He joined TTU's Office of Research in June 2009. In his current capacity, Dr. Eighmy works closely with the faculty, Department Chairs, Deans and the President's Cabinet to broaden and strengthen the research enterprise at TTU. Specific efforts are directed at entering into strategic relationships with the Federal government, the private sector, and foundations to foster investment in faculty, graduate and undergraduate research, and interdisciplinary research programs. His research interests are in beneficial use of waste materials, life cycle analysis of waste products, chemical speciation, environmental chemistry of leaching behavior, spectroscopic surface analysis, reactive barriers, and environmental microbiology. Dr. Eighmy's most recent research was supported by the Federal Highway Administration (FHWA), the National Oceanic and Atmospheric Administration (NOAA), the National Science Foundation (NSF), the U.S. Environmental Protection Agency (EPA), the European Union, and the private sector. Before June 2009, Dr. Eighmy was Interim Vice President for Research at the University of New Hampshire (UNH). At UNH, he was also the Director of Strategic Initiatives and a Professor of Civil Engineering, chaired the UNH Energy Task Force, and helped manage the State's National Science Foundation (NSF) Experimental Program to Stimulate Competitive Research (EPSCoR) Research Infrastructure Improvement (RII) initiative. Dr. Eighmy was also the founding director of UNH's Environmental Research Group (ERG), an applied environmental engineering and environmental science research center from 1987 through 2004. He also was the past director of UNH's Recycled Materials Resource Center from 1998 to 2004, which is a partnership with FHWA that promotes the wise use of recycled materials in highway construction. Dr. Eighmy presently serves on the Environmental Engineering Committee of the EPA Science Advisory Board. Dr. Eighmy is an inventor of a patented reactive barrier technology for contaminated sediments and co-inventor of a carbon sequestration technology (patent pending).

Emerson, Lawrence D.

Alpha Natural Resources, Inc.

Mr. Emerson is Environmental Manager for Alpha Natural Resources Inc., Waynesburg, PA. He holds a B.S. in Agronomy with emphasis in Land Use Management from Virginia Polytechnic Institute and State University. Mr. Emerson is responsible for permitting new coal mines in PA and WV and general environmental support for coal operations throughout the company. He has experience in contributing research and information to the Programmatic Environmental Impact Statement (EIS) on Mountaintop Mining in Appalachia conducted by the U.S. Environmental Protection Agency (EPA) in 2002. Mr. Emerson's experience in water quality studies related to mountaintop mining and valley fill operations are and have been through consultants working for Mr. Emerson on projects while Mr. Emerson worked for Arch Coal, Inc. While working for Arch Coal, Inc., he assisted, met frequently with and managed the consultants in those EIS efforts, observed many of the collection efforts, helped develop the study objectives and presented the results to various regulatory bodies in concert with the EIS effort. Subsequent to his EIS experience, the bulk of Mr. Emerson's responsibilities have been oriented heavily toward regulatory compliance, including water quality, analysis of fish and benthic sampling in receiving streams and working with regulatory personnel. His experience and understanding of mining operations and practices would bring a perspective to the Panel that is otherwise unavailable.

Eshleman, Keith

University of Maryland Center for Environmental Science

Dr. Keith Eshleman is Professor at the University of Maryland Center for Environmental Science based at Appalachian Laboratory in Frostburg, Maryland. He holds a B.A. degree in Environmental Sciences from the University of Virginia, an M.S. degree in Civil Engineering from Massachusetts Institute of Technology, and a Ph.D. in Water Resources from Massachusetts Institute of Technology. Dr. Eshleman 's professional expertise is in the field of watershed hydrology. He has published more than 50 peer-reviewed papers and dozens of technical reports in his career and is co-author of an undergraduate textbook entitled Elements of Physical Hydrology (with former colleagues from the University of Virginia, where Dr. Eshleman served on the faculty from 1988 through 1995). Dr. Eshleman's research interests are in the areas of watershed and wetlands hydrology, groundwater/surface water interactions, biogeochemical processes in upland and wetland ecosystems, hydrochemical modeling, and ecosystem responses to disturbance and land use change. His recent research projects have focused on the hydrological impacts of acid deposition, forest disturbances, and surface mining activities in the Appalachian Mountain region.

Farley, Kevin J.

Manhattan College

Dr. Kevin Farley is a Professor of Civil and Environmental Engineering at Manhattan College. He holds a B.E. in Civil Engineering and an M.E. in Environmental Engineering from Manhattan College, and a Ph.D. in Civil-Environmental Engineering from the Massachusetts Institute of Technology. Dr. Farley's research focuses on the fate and bioaccumulation of toxic chemicals in surface waters and sediment. His current projects include studies on the speciation and cycling of arsenic in lakes and reservoirs (National Institute of Environmental Health Sciences/U.S. Environmental Protection Agency (EPA) Superfund Basic Research Program), the development of a "unit world" model for metals in aquatic environments (EPA Center for Metals in the Environment), and contaminant fate and bioaccumulation modeling of PCBs, dioxins, and mercury New York Harbor sediment and biota (Hudson River Foundation). Dr. Farley has served on the National Research Council Committee on Remediation of PCB-Contaminated Sediments, on EPA scientific review panels for the Chesapeake Bay Eutrophication Model, the Lake Michigan Mass Balance Modeling Study, and the Hudson River PCB Superfund Reassessment Study, and on expert panels for the American Geological Institute and the Delaware River Basin Commission. He also serves as a consultant for HydroQual, Inc., is a co-director of the Manhattan College Institute of Water Pollution Control, and is a recipient of the American Society of Civil Engineers Wesley W. Horner Award.

Figueroa, Linda

Colorado School of Mines

Dr. Linda Figueroa is an Associate Professor of Environmental Science and Engineering at Colorado School of Mines (CSM). She holds a B.S. in Civil Engineering with an Environmental Engineering Specialization from the University of Southern California, and an M.S. and Ph.D. in Civil Engineering with an Environmental Engineering Specialization from the University of Colorado at Boulder. From 1978 to 1983 Dr. Figueroa worked in the area of Civil and Environmental Engineering for DMJM and Engineering Sciences, Inc. and during that time she received her Civil Engineering license. Since 1990 she has been a member of the faculty of Environmental Science and Engineering at CSM. Dr. Figueroa is Associate Director of the CSM Nuclear Science and Engineering Center and is senior co-editor of the book "Mitigation of Metal Mining Influenced Water" published in 2009. She is author of approximately sixty journal and conference papers in the area of water treatment. Dr. Figueroa's current research interests include modeling, analysis and design of anaerobic microbial processes applied to mitigation of metals, radionuclide and nitrogen and energy production. She is active in the Acid Drainage Technology Initiative-Metal Mining Sector and the Interstate Technology Regulatory Council-Mine Waste.

Fisher, Stuart

Arizona State University in Tempe

Dr. Stuart G. Fisher is Professor of Biology and faculty leader for Ecology, Evolution, and Environmental Science at Arizona State University in Tempe. He received BS and MA degrees in Biology from Wake Forest University and a PhD in Biological Sciences (1971) from Dartmouth College. Dr. Fisher's research is on the ecosystem dynamics and biogeochemistry of streams, particularly in the context of multiple disturbances and their interaction. He led a 30-year NSF-supported long-term study of a desert stream-riparian ecosystem which resulted in the publication of over 100 research papers on the dynamics of running water ecosystems. Dr Fisher has served on editorial boards for Ecology, Journal of the North American Benthological Society, and Landscape Ecology and is a past president of the North American Benthological Society. Recently he has been Co-PI on ASU's LTER project in urban ecology and PI and Director of an Integrative Graduate Education and Research Training Grant (IGERT) in urban ecology. He received the North American Benthological Society's "Award of Excellence" in 1998 and he is the 2008 recipient of the Ecological Society of America's Eugene P. Odum "Excellence in Ecological Education" award. He has served on several NSF and EPA panels and review teams.

Galya, Thomas

U.S. Department of Interior

Dr. Galya is a Hydrologist with the U. S. Department of the Interior (DOI), Office of Surface Mining (OSM), in Charleston, WV, and has served in this role since 2002. He holds a B.S. in Geology from West Virginia University, an M.S. in Geology from the University of Louisiana, and a Ph.D. in Geology from Miami University. Between 1991 and 2002, Dr. Galya served as a Geologist with the West Virginia Department of Environmental Protection (WVDEP), Division of Mining and Reclamation (DMR), Nitro, WV. Between 1978 and 1991, he served as a Geologist with several private coal companies, notably Pittston, Exxon, and Island Creek coal companies. While at the WVDEP-DMR he wrote approximately 60 Cumulative Hydrologic Impact Assessments for mining permits for watersheds in West Virginia, and completed numerous hydrologic investigations of alleged mining impacts to streams and aquifers. He was the coordinator and presenter of an inter-agency "Workshop on Mountaintop Mining Effects on Ground Water" held in May, 2000. Dr. Galya has also recently served as the DOI-OSM lead investigator for a coal slurry injection project that investigated the impact of coal slurry on surface water and ground water resources from injection of coal slurry into abandoned underground mines. He is currently assisting the State of Virginia in the assessment of the cumulative impacts on the Bull Creek watershed and the review of the Bull Creek TMDL model. Also, he is currently involved in the environmental monitoring enhancements to requirements for underground mining in West Virginia. In his role at DOI, Dr. Galya has recently co-chaired nine meetings of the American Society of Testing and Materials (ASTM) Geospatial Data Standards Task Group, which is a nationwide consortium of Federal, State, industry, and environmental representatives from the coal mining community. The goal of the Task Group is to develop geospatial data standards for Surface Mining Control and Reclamation Act (SMCRA)-related mining datasets. The approved ASTM standards include two (2) post-SMCRA mining Title V, and four (4) pre-SMCRA Title IV standards that are currently under ASTM review. He teaches subsidence for nationwide coal-producing states federal, state, and tribal staff. Dr. Galya recently lead the joint OSM/WVDEP remote sensing project entitled "Vegetation success at WV mountaintop surface mines by remote sensing technology," and participated in field work with WVDEP staff to identify vegetation types at the mine sites. He is a member of the American Institute of Professional Geologists, the American Association of Petroleum Geologists (& Energy Minerals), International Mine Water Association, the Geological Society of America (Hydrogeology and Coal Divisions), and several other professional and honorary organizations.

Geidel, Gwendelyn

University of South Carolina

Dr. Gwendelyn Geidel is a Research Professor in the Department of Earth and Ocean Sciences and Assistant Director of the School of the Environment at the University of South Carolina in Columbia, SC. She holds a B.S. M.S. and Ph.D. in Geology and a J.D. from the University of South Carolina. Dr. Geidel's research interests include the prediction, prevention and remediation of ground and surface water contamination caused by mining and other anthropogenic disturbances of the earth's surface. Examples of her research include investigations of rock-water interactions from mining activities (including both coal and metal mining in the U.S. and Canada), the degradation of water quality from the oxidation of sulfide minerals, laboratory evaluation of acid and alkaline potentials from rock strata, field investigations of the long term effects of mining, and the implementation at field sites of constructed wetlands, anoxic limestone drains, alkaline trenches and other remediation and reclamation technologies. Dr. Geidel is a member for the Acid Drainage Technology Initiative (ADTI) which is a national joint effort sponsored by the U.S. Environmental Protection Agency, the U.S. Department of Interior's Office of Surface Mining, Interstate Mining Compact Commission and the National Mining Association and has been a Group Leader for the Coal Mining sector and a Steering Committee member for the Metal Mining sector of ADTI. ADTI is comprised of government, industry and university representatives who, on a national level, are charged with formulating guidelines and methodologies related to mine water quality. Dr. Geidel is also a member of the Association for Surface Mining and Reclamation (ASMR).

Giesy, John P.

University of Saskatchewan, Canada

Dr. John P. Giesy is currently Professor and Canada Research Chair in Environmental Toxicology in the Department of Veterinary Biomedical Sciences and Toxicology Centre at the University of Saskatchewan. He is also Distinguished Professor Emeritus of Zoology at Michigan State University in East Lansing, Michigan, where he was a Professor for 26 years. Dr. Giesy is also Chair Professor at Large of Biology & Chemistry, at City University of Hong Kong and Concurrent Professor of Environmental Science at Nanjing University, China. He holds a B.S. in Biology from Alma College, Alma, Michigan, and an M.S. and Ph.D. in Fisheries & Wildlife (Limnology) from Michigan State University. Dr. Giesy is a world leading eco-toxicologist with interests in many aspects of eco-toxicology, including both the fates and effects of potentially toxic compounds and elements, particularly in the area of ecological risk assessment. He has conducted research into the movement, bioaccumulation, and effects of toxic substances at different levels of biological organization, ranging from biochemical to ecosystem. Dr. Giesy has done extensive research in the areas of metal speciation, multi-species toxicity testing, biochemical indicators of stress in aquatic organisms, fate and effects of PAHs, halogenated hydrocarbons, including chlorinated dibenzo-*p*-dioxins and -furans, PCBs and pesticides. He discovered the phenomenon of photo enhanced toxicity of organic compounds, such as PAHs and was the first to report the occurrence of perfluorinated chemicals in the environment. Dr. Giesy's studies include both laboratory and field as well as mesocosm studies and apply tools from molecular biology to ecosystem-level. He was the first to report the occurrence of perfluorinated compounds in the environment. Dr. Giesy has published 687 books and peer-reviewed articles and presented 1,134 lectures, world-wide. His research is much used and cited by other researchers - Dr. Giesy is in the top 0.01% of active authors (Institute for Scientific Information (ISI) Current Contents) and was the 2nd most cited author in the field of Ecology/Environmental Science over the period 1997-2007 with 12,437 citations, and his h-score is 55. He is currently a chartered member of the U.S. Environmental Protection Agency (EPA) Science Advisory Board and a member of six National Academy of Sciences panels, including: 1) Endocrine Disruptors, 2) Remediation of PCB-Contaminated Sediments, and 3) Bioavailability of Residues from Sediments and Soils. Dr. Giesy currently serves on the Boards of Scientific Councilors (BOSC) and the EPA Office of Research and Development (ORD) (Executive Committee).

Gillespie, Robert B.

Indiana University-Purdue University

Dr. Robert Gillespie is Associate Professor and Associate Chair in the Department of Biology at Indiana University-Purdue University (IPFW), Fort Wayne, IN. He is also the Director of IPFW's Crooked Lake Biological Station near Columbia City, IN. Dr. Gillespie holds a B.S. from Stockton State College, Pomona NJ, M.S. from the University of Akron, and a Ph.D. from Ohio State University. He also completed a two-year Postdoctoral Fellowship in Applied Ecology at Miami University, Oxford, Ohio. Dr. Gillespie's research specialty is ecotoxicology and aquatic ecology. He has taught a graduate course in Ecotoxicology at IPFW for nearly 20 years. Dr. Gillespie's Ph.D. research focused on the effects of selenium exposure to fish in reservoirs of coal-fired power plants, and postdoctoral research centered on the effects of exposure to aquatic toxicants on genetic variation in fishes. He continued this area of research at IPFW with fish and amphipods. Shortly after arriving at IPFW, Dr. Gillespie participated in a study that used short-term biomarker responses in brown bullhead fish to assess impacts from exposure to sediments contaminated with polycyclic aromatic hydrocarbons. More recently, he has begun studies that are investigating the effects of non-point source pollutants on aquatic organisms in streams of northeast Indiana. Dr. Gillespie currently collaborates with scientists from the Agricultural Research Service, National Soil Erosion Research Laboratory on the Conservation Effects Assessment Project. His research studies the impacts of agricultural contaminants on the ecology and biology of aquatic organisms.

Halstead, Lewis

West Virginia Department of Environmental Protection

Mr. Lewis Halstead is the Deputy Director of the Division of Mining & Reclamation at the West Virginia Department of Environmental Protection (WVDEP). He holds a B.S. in Geology and an MBA from West Virginia University. At WVDEP, Mr. Halstead manages program development for the Division of Mining (DMR), which includes development and interpretation of statutes, regulations, policies, rules, guidance, and procedures for the coal mining industry. He represents the Cabinet Secretary and the Director of DMR at many meetings, such as the Regional States/U.S. Department of the Interior Office of Surface Mining meeting, the Interstate Mining Compact Commission meetings, and other committees, many of which are on a national scale. Mr. Halstead has devoted his career to the regulation of the coal mining industry, from his beginning as a Surface Mining Reclamation Inspector, Geologist, Assessment Officer, and various management positions culminating in his current position.

Hartman, Kyle

West Virginia University

Dr. Kyle Hartman is a Professor of Ecology and Program Chair in Wildlife and Fisheries Resources at West Virginia University. He holds an A.S. in Wildlife Law Enforcement from Hocking College, B.S. in Fisheries Management and M.S. in Environmental Biology from Ohio State University, and Ph.D. in Marine and Estuarine Environmental Sciences from University of Maryland. Dr. Hartman worked in headwater streams since beginning at WVU in 1996. He has authored over 70 articles in peer-reviewed journals and 2 book chapters, with 56 of these works occurring since 2000. Included in this body of work is one of the first studies to explore the biotic response in streams draining mountaintop mining sites published in the journal Hydrobiologia in 2001. Dr. Hartman has been active in professional societies, peer review, and service on committees and advisory boards. He served as an associate editor for the journals Transactions of the American Fisheries Society and Fish Ecology and Management. Dr. Hartman has organized symposia on headwater streams each of the last 3 years at the National meeting of the American Fisheries Society. In addition to numerous university committees and faculty senate, he is also serves on the scientific advisory board for Dominion related to their Mount Storm Generating Station.

Hawkins, Charles Patrick

Utah State University

Dr. Charles Hawkins is a Professor in the Department of Watershed Sciences and Director of the Western Center for Monitoring and Assessment of Freshwater Ecosystems at Utah State University. He holds a B.A. in Biology and an M.A. in Aquatic Biology from California State University, Sacramento, and a Ph.D. in Entomology (Aquatic Ecology emphasis) from Oregon State University. Dr. Hawkins has been on the faculty of Utah State University since 1983 following completion of his PhD in Entomology at Oregon State University. His research focuses on the ecology and management of freshwater ecosystems with special emphasis on survey designs; predictive modeling of community composition; use of aquatic biota to assess and monitor ecological integrity; cumulative effects of watershed alteration on the physical, chemical, and biotic condition of aquatic and riparian ecosystems; and the biology and ecology of freshwater invertebrates, amphibians, and fishes. Over the last 10 years, Dr. Hawkins has worked extensively with state and federal agencies to develop and evaluate scientifically defensible biological indicators and criteria for freshwater ecosystems. His research has been supported by grants from, among others, the National Science Foundation, U.S. Environmental Protection Agency (EPA), United States Geological Survey, and the U.S. Forest Service. He has published results of his research in the top-ranked ecological journals. Dr. Hawkins has served on the editorial board of the Journal of the North American Benthological Society and served a 4-year term as Vice-Chair and Chair of the Aquatic Ecology section of the Ecological Society of America. He served two terms (2001-2005) on the Ecological Processes and Effects Committee of the EPA's Science Advisory Board (SAB), currently serves on the EPA-SAB's Report on the Environment Committee, and served on the Community Condition Indicators Committee for the H. John Heinz III Center for Science, Economics and the Environment.

Hayes, Kim F.

University of Michigan

Dr. Kim Hayes is a Professor of the Environmental and Water Resources Engineering (EWRE) in the Department of Civil and Environmental Engineering at the University of Michigan. He served as Program Director of the EWRE program from 2001- 2007. Dr. Hayes holds a B.S. degree in Chemistry, M.S.E. in Environmental Engineering, M.S.E. in Chemical Engineering, and a Ph.D. in Environmental Engineering from Stanford University. His primary field of specialization is environmental chemistry as it pertains to water quality and water purification. Dr. Hayes' research focuses on the use of solid phase adsorbents for the treatment of water contaminated by organic (e.g., chlorinated organic compounds) and inorganic pollutants (e.g., heavy metals like Cd, Pb and Hg, metalloids such as As, and radioactive materials such as Uranium). His work also focuses on applications of green chemistry and sustainability engineering principles for creating environmentally benign processes or products and sustainable water supplies. Current research includes: development of nanoscale particles for surface-catalyzed reductive dechlorination and metal ion or radionuclide sequestration for groundwater remediation, reformulation and production of environmentally sustainable metal working fluidic systems for lubrication and cooling, the development of a bioreactor system that produces reduced iron sulfide to remove arsenic as part of an overall process for simultaneous removal of nitrate, perchlorate, and arsenic, and evaluation of the long term effectiveness of biogenic reduction of Uranium under sulfate reducing conditions at contaminated field sites. Dr. Hayes has more than 100 publications in peer-reviewed manuscripts, book chapters, technical reports, and proceedings detailing work on environmental chemistry and interfacial processes for contaminant remediation. He was an elected member of the Board of Directors of the Association of Environmental Engineering and Science Professors (2000-2003), a past member of the Technical Advisory Board of the Great Lakes Protection Fund (2000-2006), and has participated on a variety other workshop and review panels for the U.S. Environmental Protection Agency, National Science Foundation, and U.S. Department of Energy related to metal ion speciation, sequestration and mobility.

Hilderbrand, Robert H.

University of Maryland Center for Environmental Science

Dr. Robert Hilderbrand is an Associate Professor at the Appalachian Laboratory of the University of Maryland Center for Environmental Science. He holds a B.S. in wildlife and fisheries management from Frostburg State University where he minored in chemistry and biology, an M.S. in Fisheries Science from Virginia Tech, and a Ph.D. in ecology from Utah State University. Dr. Hilderbrand has a diverse background in stream ecology, including research into stream channel and aquatic invertebrate responses to habitat enhancement, fish movements and interspecific interactions, and landscape-level factors influencing fish distributions. His research primarily involves risk assessment for stream ecosystems and their components. Much of Dr. Hilderbrand's current research can be described as environmental epidemiology where has developed methods to explore large datasets for ecological thresholds relating land use change to the resilience or vulnerability of species and communities. His other risk related research involves quantifying thermal regimes of streams and assessing risk of extirpation to aquatic organisms from a number of potential stressors. Dr. Hilderbrand also works closely with state and federal resource management and assessment agencies to provide technical guidance and to translate research results into application.

Hitt, Nathaniel P.

U.S. Geologic Service

Dr. Nathaniel Hitt is a Research Ecologist in the Aquatic Ecology Branch of the U.S. Geological Survey's (USGS) Leetown Science Center in Kearneysville, West Virginia. He holds a B.A. in Biology from the College of Wooster, an M.S. in Organismal Biology and Ecology from the University of Montana, and a Ph.D. in Fisheries and Wildlife Sciences from Virginia Tech University. Dr. Hitt's research investigates freshwater fish ecology and community ecotoxicology from a landscape-scale perspective, focusing on stream ecosystems in the mid-Atlantic highlands. His work has demonstrated that local fish communities may be influenced by dispersal among connected streams, and that an understanding of stream network topology may improve the precision of fish bioassessment in Appalachia. He is currently developing a research program to evaluate selenium bioaccumulation in stream fishes in southern West Virginia. This research quantifies selenium concentration gradients within food webs (i.e., aqueous, periphyton, benthic macroinvertebrates, fishes) to calculate trophic transfer functions and to evaluate how local environmental conditions mediate selenium bioavailability in streams. Dr. Hitt was invited to the Society for Environmental Toxicology and Chemistry's recent Workshop on Selenium in the Aquatic Environment and he has co-authored a chapter in a forth-coming text on this topic. In 2008, he was invited by the Kentucky State Legislature to provide testimony on the ecological effects of surface mining on stream ecosystems. In 2009, Dr. Hitt was invited to contribute to the U.S. Environmental Protection Agency's Biological Condition Gradient assessment for fishes in the mid-Atlantic highlands.

Holl, Karen Davis

University of California, Santa Cruz

Dr. Karen Holl is on the faculty in the Environmental Studies Department at the University of California, Santa Cruz. She holds a B.S. in Biology from Stanford University, and a Ph.D. in Biology from Virginia Polytechnic Institute and State University. For the past 12 years, Dr. Holl has taught courses in restoration ecology. She has done research on restoration ecology in a range of ecosystems, including tropical rain forests, eastern hardwood forests, and chaparral, grassland and riparian systems in California. Dr. Holl has published over 50 journal articles and book chapters on restoring damaged ecosystems. She is on the editorial board of the journal Restoration Ecology and the Island Press Ecological Restoration Book Series. Dr. Holl regularly advises numerous public and private agencies, such as California State Parks, the University of California Natural Reserves, The Nature Conservancy, and the Elkhorn Slough Coastal Training Program, on land management questions. In 2008 she was selected as an Aldo Leopold Leadership Fellow.

Hudson, Robert J.M.

University of Illinois at Urbana-Champaign

Dr. Robert J.M. Hudson is an Associate Professor in the Department of Natural Resources and Environmental Sciences at the University of Illinois at Urbana-Champaign. He holds a B.S. in Chemistry and a B.S. in Chemical Engineering from the University of California, Santa Barbara, and a Ph.D. in Civil and Environmental Engineering from Massachusetts Institute of Technology. Dr. Hudson has been actively involved in environmental research, education, and service since earning his Bachelor of Science degrees in Chemistry and Chemical Engineering from the University of California at Santa Barbara in 1979. In his first professional position as an engineer at Tetra Tech, Inc., he was responsible for developing the biogeochemistry module of the ILWAS Acid Rain Model under the direction of Mr. Steven Gherini. Next, Dr. Hudson undertook doctoral studies in Civil and Environmental Engineering at the Massachusetts Institute of Technology. For his dissertation research with Professor Francois Morel, he conducted novel investigations how inorganic speciation affects the bioavailability of iron during uptake by phytoplankton. This lead directly to his present research interest in the bioavailability and speciation of trace metals. During his postdoctoral research, conducted largely at Tetra Tech, Dr. Hudson was responsible for developing biogeochemical models that simulated: i) the cycling and bioaccumulation of mercury in lakes and ii) the global cycling of mercury and of carbon. Since moving to the University of Illinois, he has begun two new major new directions in his research. The first major direction is developing advanced empirical modeling approaches for analyzing trace metal speciation data from field studies. This approach permits both extant and new data to be analyzed in ways that overcome recently-identified, serious problems in calibrating the current state of the art analytical methods, CLE-CSV in particular. It also permits accurate estimates of the uncertainties in speciation measurements to be made. In addition, he is currently working with the USGS NAWQA Program to model the Hg cycle in headwaters streams. The second major direction involved developing a new method for analyzing methylmercury based on ion chromatography of mercury complexes and detection with cold vapor atomic fluorescence spectrometry. This method has the same sensitivity and selectivity as the current standard method based on gas chromatography, but has the advantage of being automatable. He is currently comparing their results for MeHg in water samples with those of the conventional method (USEPA Method 1630) and developing evidence that dissolved MeHg levels may be somewhat higher than indicated by the conventional method. At different points in his career, Dr. Hudson has emphasized either: i) conducting field and experimental studies of biogeochemical processes or ii) modeling biogeochemical processes. His current approach to research emphasizes studies that require bringing both together. Data are analyzed using sophisticated statistical methods, such as inverse modeling, multidimensional optimization, and non-linear regression, and models are used to assist in designing field studies.

Huryn, Alexander

University of Alabama

Dr. Alexander Huryn is a freshwater ecologist with a strong interest in how local, landscape, and regional factors affect the structure and productivity of freshwater communities, stream communities in particular. He is currently a Professor in the Aquatic Biology Program in Department of Biological Sciences at the University of Alabama. Dr. Huryn holds a B.Sc. and an M.Sc. from Kent State University and a Ph.D. from the University of Georgia. He currently serves as an Associate Editor for the journal Limnology & Oceanography and on the Editorial Advisory Committee for the Northeastern Naturalist. Dr. Huryn was a past member of the Editorial Board of the journal Freshwater Biology. He is currently a member of the North American Benthological Society, the Ecological Society of America, the American Society of Limnologists and Oceanographers, and the National Speleological Society. Dr. Huryn has authored over 75 journal articles and book chapters, and has given numerous presentations at both national and international professional meetings. Over the past few decades, he has been involved in a number of collaborative studies addressing the relationship between ecosystem productivity and geomorphology, regional geology, invasive species, amphibian declines, river-floodplain linkages, regional nitrogen deposition, and climate change. Dr. Huryn has worked intensively in stream and river systems in southeastern Ohio, western North Carolina, northern and central Alabama, the South Island of New Zealand, Maine, Panama, and the North Slope of Alaska. His work has focused on a diverse set of stream types ranging from intermittent headwater streams, Arctic springs, cave streams, and neotropical streams to river-floodplain complexes. Dr. Huryn's research projects, although diverse, have been consistent in their focus on gaining understanding of processes controlling primary and secondary productivity. Within the past decade, he has become increasingly focused on answering questions about how food-web structure and landscape templates interact to control stream ecosystem productivity. Toward this end, Dr. Huryn is currently involved in an exciting collaboration with personnel from the University of Alabama and the Arctic National Science Foundation - Long-Term Ecological Research. Arctic streams have simple food-webs that respond strongly to landscape variables. This makes them particularly amenable to studies of landscape control of productivity as mediated by food-web structure.

Iannacchione, Anthony

University of Pittsburgh

Dr. Anthony Iannacchione is the director of the mining engineering program at the University of Pittsburgh where he teaches mining engineering and conducts research. Prior to this appointment in 2008, he worked for the U.S. Bureau of Mines and National Institute for Occupational Safety and Health for approximately 33 years. He holds a B.S. in Geology from California University of Pennsylvania, and an M.S. in Civil and Environmental Engineering, an M.S. in Earth and Planetary Science, and a Ph.D. in Civil and Environmental Engineering from the University of Pittsburgh. He has participated on numerous advisory committees through his career, most recently serving on several National Science Foundation committees associated with their Deep Underground Science and Engineering Laboratory. Dr. Iannacchione's research addresses mass wasting and slope stability issues associated with abandoned mine lands and evaluating the effects of underground mining on surface structures and water sources. Most recently he has been working on mineral industry risk assessment and management issues.

Jacinthe, Pierre-André

Indiana University Purdue University

Dr. Pierre-André Jacinthe is an Assistant Professor of Soil Biogeochemistry in the Department of Earth Sciences at Indiana University Purdue University Indianapolis (IUPUI). He holds a B.S. in Agronomy from the State University of Haiti, an M.S. in Natural Resources from Ball State University, and a Ph.D. in Agronomy/Soil Biochemistry from the Ohio State University. Before joining IUPUI, Dr. Jacinthe was a Research Scientist at the Ohio State University's Carbon Management and Sequestration Center. His research interests include: soil-atmosphere exchange of trace gases (CO_2, CH_4 and N_2O); restoration and biogeochemistry of disturbed landscapes; carbon sequestration in terrestrial ecosystems; conservation tillage and soil processes; transport and fates of eroded carbon. During the last ten years, Dr. Jacinthe has been involved in several mineland restoration projects in the Appalachian region of Ohio and the Illinois coal basin region. He teaches undergraduate and graduate courses in Environmental Geology and Soil Biogeochemistry. Dr. Jacinthe has served as a reviewer for numerous journals and funding agencies.

Jaffé, Peter

Princeton University

Dr. Peter Jaffé is a Professor in the Department of Civil and Environmental Engineering at Princeton University. He holds a BSE in Chemical Engineering from the Universidad Simon Bolivar in Caracas, Venezuela, and an M.S. and Ph.D. in Environmental and Water Resources Engineering from Vanderbilt University. Dr. Jaffé's research focuses on the physical, chemical, and biological processes that govern the transport and transformation of pollutants in the environment and the remediation of contaminated systems. His areas of current research emphasis include: (1) biogeochemical dynamics affecting trace metals and radionuclides in sediments, wetland soils, and groundwater, including the design of remediation schemes; (2) biological and chemical processes affecting organic contaminants in porous media; and (3) simulation and analysis at the watershed scale of soil contamination processes and nitrogen processing. Dr. Jaffé was chair of the Department of Civil and Environmental Engineering at Princeton University from 1999 to 2005. He held visiting positions at the Venezuelan Research Institute, the International Institute for Applied Systems Analysis in Austria, the University of Auckland, the Ecole des Mines D'Abi., and was an AT&T Industrial Ecology Fellow. Dr. Jaffé has served on numerous committees and panels, including at the National Research Council, U.S. Environmental Protection Agency, National Institutes of Health, National Science Foundation, U.S. Department of Energy, the Singapore Expert Panel of The Environment and Water Industry Development Council, and others. He is a Board Certified Environmental Engineering Member of the American Academy of Environmental Engineers by Eminence.

Jenkins, George

Independent Consultant

Mr. George Jenkins is Principal and Owner of Jenkins Consulting Co., LLC, Shady Spring, WV. He holds a B.S. in Geology from Ohio University, and an M.S. in Environmental Science from Marshall Graduate College. He is currently an Adjunct Assistant Professor at Concord University, and has taught courses in Biology, Environmental Engineering, Geology, Environmental Geology, Geography, Remote Sensing and Hazardous Materials. Mr. Jenkins has intimate familiarity with mining process and environmental concerns, with over 39 years experience in mine development, environmental affairs, environmental regulation, mine permitting, marketing, due diligence, reserve reports, land acquisition and mineral engineering, with 18 of those years in management. He has a proven ability in project management for cost control and target date fulfillment. Between 1992 and 2008, Mr. Jenkins served as a Senior Geologist and a Supervisor for the Department of Environmental Protection (DEP) in the State of West Virginia. His role at DEP was to oversee all Division Permitting Geologists, and to serve as Permit Supervisor for the Welch field office with 7 employees. Mr. Jenkins has authored over 300 CHIAs (Cumulative Hydrologic Impact Assessments) on mining projects, including the Twentymile CHIA, which was used as a basis for part of the Mountaintop EIS. These CHIAs considered the long term environmental impact of each proposal, including the hydrogeological consequences. Mr. Jenkins has performed as chief expert witness for the DEP in Federal Court, Surface Mine Board, Environmental Quality Board and other venues. He has served as a member of numerous State and Federal committees and task forces, and is a member of the CHIA (Cumulative Hydrologic Impact Assessment) Quality Control Committee. He was the co-author of the selenium protocol for the DEP and has been recognized as an expert for selenium and other trace metals associated with coal mining.

Johnson, Lucinda

University of Minnesota

Dr. Lucinda Johnson is Interim Director of the Center for Water and the Environment at the University of Minnesota's Natural Resources Research Institute. She holds a B.A in Botany from Duke University, an M.S. in Entomology from State University of New York, College of Environmental Science and Forestry, and a Ph.D. in Zoology from Michigan State University. Dr. Johnson is an aquatic and landscape ecologist whose research focuses on the impacts of multiple stressors on aquatic ecosystems with emphasis on human activities (e.g. land use) and climate change. Much of her work has involved quantifying interactions between terrestrial and aquatic ecosystems with a focus on aquatic endpoints (primarily amphibians, invertebrates, fish, and their habitats) in streams, wetlands, and coastal ecosystems of the Great Lakes. Dr. Johnson's work has resulted in the development of environmental indicators for assessing the condition of aquatic ecosystems, along with the development of spatial analysis tools for identifying reference and degraded conditions. These tools have proved useful for environmental assessment as well as conservation planning. Dr. Johnson holds leadership positions in the Association of Ecosystem Research Centers (President) and the North American Benthological Society (President-Elect).

Jones, John Paul

Alpha Natural Resources

Mr. John Paul Jones is currently the Director of Environmental Affairs for Alpha Natural Resources located in Abingdon, Virginia. He holds a B.S. in Biology from University of Virginia's College at Wise in Wise, VA, and an M.S. in Environmental Health and Administration from East Tennessee State University in Johnson City, TN. Mr. Jones has managed the Environmental Program for Alpha for the last six years. He has nearly thirty (30) years of experience in the environmental permitting and compliance field, primarily associated with coal mining. Mr. Jones has experience as a regulator and as an environmental consultant; he has also held environmental compliance positions from field level to corporate. He has a working knowledge of current mining-related environmental issues in many states and at the national level. Mr. Jones actively participates on the environmental committees of several state and federal trade associations and currently serves as the Chairman of the Governor's Mined Land Reclamation Advisory Committee in Virginia. He is a Registered Environmental Manager (REM) with the National Registry of Environmental Professionals.

Kaplan, Louis A.

University of Pennsylvania

Dr. Louis Kaplan is a Senior Research Scientist and Principal Investigator of the Biogeochemistry Group at Stroud Water Research Center in Avondale, PA. He is also an Adjunct Professor of Biology in the Department of Biology at the University of Pennsylvania, and a Participation Member of the Marine Estuarine Environmental Sciences (MEES) Graduate Program at the University of Maryland. Dr. Kaplan holds a B.A. in Environmental Sciences from Franklin and Marshall College in Lancaster, PA, an M.S. in Ecology from University of California, Davis, and a Ph.D. in Biology (Limnology) from the University of Pennsylvania. His research interests and areas of expertise include dissolved organic matter biogeochemistry, aquatic microbial ecology, and nutrient cycling. Dr. Kaplan's current and recent research include: Hydrologic regulation of dissolved organic matter biogeochemistry from forests through river networks; Stream ecosystem structure and function within a maturing deciduous forest; Dynamics of organic particles in river networks; Dynamics of stream ecosystem responses across gradients of reforestation and changing climate in a tropical dry forest; and Water quality monitoring in the source water areas for New York City: an integrative watershed approach. His recent publications include Biome level biogeography in streambed microbiota; Biophysical controls on dissolved organic carbon in fluvial networks; Untangling the complex issue of dissolved organic carbon uptake: a stable isotope approach; Organic matter transport in New York City drinking-water-supply watersheds; Biodegradable dissolved organic matter in a temperate and a tropical stream determined from ultra-high resolution mass spectrometry; Recurring seasonal dynamics of microbial communities in stream habitats; and Uptake of nutrients and organic carbon in streams in New York City drinking-water-supply watersheds. Dr. Kaplan is a fellow of the American Academy of Microbiology, member of the American Association for the Advancement of Science, American Society for Microbiology, American Society of Limnology and Oceanography, and the North American Benthological Society. He has served as a Panel member on Committees at the National Science Foundation and U.S. Environmental Protection Agency, and serves as Chairman of a Joint Task Group on Assimilable Organic Carbon published in Standard Methods for the Examination of Water and Wastewater and as a member of a Joint Task Group on Total Organic Carbon published in Standard Methods for the Examination of Water and Wastewater. Dr. Kaplan also serves as an Ad Hoc reviewer for the following journals and organizations: Canadian Journal of Fisheries and Aquatic Sciences; Ecology, Limnology and Oceanography; Freshwater Biology; Freshwater Ecology; Journal of the American Water Works Association; Journal of the North American Benthological Society; Revue des Sciences de l'Eau; National Science Foundation; Hudson River Foundation; and National Geographic Society.

Karr, James R.

University of Washington

Dr. James Karr is professor emeritus at the University of Washington, Seattle where before his retirement he was professor of fisheries, professor of biology, and adjunct professor of civil and environmental engineering, environmental health, and public affairs. He holds a B.S. in Fish and Wildlife Biology from Iowa State University, and M.Sc. and Ph.D. degrees in Zoology from the University of Illinois, Urbana-Champaign. Following post-doctoral appointments at Princeton University and the Smithsonian Tropical Research Institute (Balboa, Panana), Dr. Karr was on the faculties of Purdue University, University of Illinois, and Virginia Tech University; he was also deputy director and acting director at the Smithsonian Tropical Research Institute in Balboa, Panama. He has taught and done research in tropical forest ecology, ornithology, stream ecology, watershed management, landscape ecology, conservation biology, ecological health, and science and environmental policy. Dr. Karr is a fellow in the American Association for the Advancement of Science and the American Ornithologists' Union and received the 2004 Carl R. Sullivan Fishery Conservation Award from the American Fisheries Society and the 2005 Environmental Stewardship Award from the North American Benthological Society. He has written more than 300 scholarly articles, books, reports, book reviews, and popular essays on ecology and environmental policy. Dr. Karr developed the index of biotic integrity (IBI) to directly evaluate the effects of human actions on the health of living systems. His current primary concern is to improve the use of biological information in the decision making process of society and the protection of the well-being of human society through more sophisticated use of ecological, especially biological, knowledge.

Kitts, O. Eugene

International Coal Group, Inc.

Mr. O. Eugene Kitts is Vice President - Mining Services for International Coal Group, Inc. in Scott Depot, WV. He holds a B.S. in Civil Engineering from West Virginia University. Mr. Kitts has thirty-two years of management and engineering experience acquired with major coal-producing companies operating in WV, KY, MD, IL and VA and with leading regional engineering firms. During his career, he has supervised the redesign and subsequent permitting activity for Arch Coal's Spruce Mine to resolve U.S. Environmental Protection Agency objections; managed the design and regulatory permitting for approximately 25 surface mines in West Virginia and Kentucky; gained extensive recent experience in U.S. Army Corps of Engineers Clean Water Act Section 404 permitting; evaluated surface mining operations and reserves in West Virginia, Kentucky, Virginia, and Tennessee; coordinated evaluation of surface mine reserves in Guasare Basin in Venezuela as president of Massey Coal International; and inspected and analyzed surface mining in Scotland, northern England, and Wyoming in conjunction with the evaluation of a Venezuelan coal mining project. Prior to serving with the International Coal Group, Inc., Mr. Kitts has served as Vice President, Environmental and Technical Affairs Arch Coal, Inc. – Eastern Operations; Vice President and partner of Summit Engineering, Inc.; Vice President-Engineering and President of Massey Coal Services, Inc.; President of Elk Run Coal Company; and other positions in industry. He serves as Chairman of the Environmental/Technical Committee of the West Virginia Coal Association, is a member of the Society of Mining Engineers, and is a registered Professional Engineer in West Virginia and Kentucky.

LaPoint, Thomas W.

University of North Texas

Dr. Thomas La Point is the former director of the Institute of Applied Sciences at the University of North Texas and is a Professor in the Department of Biological Sciences. He holds B.S. in Zoology and Physiology from the University of Wyoming, an M.S. in Population Biology from the University of Houston, and a Ph.D. in Aquatic Biology from the Department of Biological Sciences at Idaho State University. Dr. La Point's primary research and teaching interests include contaminant effects on freshwater aquatic communities, specifically in how metals and organic contaminants affect benthic population dynamics and freshwater fisheries. He has published on ecosystem measures, contaminant bioaccumulation, and sub-lethal effects on aquatic populations. Dr. La Point has served on several National Science Foundation, U.S. Environmental Protection Agency (EPA), and U.S. Geological Survey panels to review proposals submitted for funding. He is on the editorial board for Chemosphere and Environmental Toxicology and Pharmacology and has served as Editor of the Society of Environmental Toxicology and Chemistry (SETAC) Special Publication Series. Dr. La Point's current research is funded by EPA, U.S. Army Corps of Engineers, and the City of Denton, TX.

Lemly, A. Dennis

U.S. Forest Service

Dr. A. Dennis Lemly is a Research Fishery Biologist with the Piedmont Aquatic Research Lab, Southern Research Station, of the U.S. Forest Service in Winston-Salem, NC. He holds an M.S. and Ph.D. in Biology from Wake Forest University. Dr. Lemly has spent over 25 years investigating the effects of selenium pollution in aquatic ecosystems. He has extensive experience conducting field and laboratory research on selenium toxicology, primarily involving aquatic cycling, bioaccumulation, and effects on fish. These studies include intensive investigations of the two most substantial cases of selenium pollution that have taken place in the USA; (1) Belews Lake, North Carolina, where 19 species of fish were eliminated, and (2) Kesterson Marsh, California, where thousands of aquatic birds were poisoned. Dr. Lemly's career began in the late 1970's with studies of the landmark pollution event at Belews Lake, which established the fundamental principles of selenium bioaccumulation and reproductive toxicity in fish. In the 1980's, he was a research project manager for the U.S. Fish and Wildlife Service, directing studies that determined impacts of selenium from agricultural irrigation on aquatic life at Kesterson and in 14 other western states. In the 1990's, the emphasis of Dr. Lemly's research shifted to the development of methods and guidelines for hazard assessment and water quality criteria for selenium, which led to the publication of a reference book. This handbook contains the first comprehensive assessment tools for evaluating selenium pollution on an ecosystem scale. He has consulted on selenium contamination issues ranging from landfill leachate in Hong Kong to mountaintop removal coal mining in West Virginia. Dr. Lemly provides the methods and technical guidance necessary to identify, evaluate, and correct aquatic selenium problems before they become significant toxic threats to fish and wildlife populations. He has devised and applied techniques for protecting aquatic life in habitats from the Arctic to the tropics, and from high mountain streams to coastal lagoons.

Luoma, Samuel

University of California, Davis

Dr. Samuel N. Luoma is Director of Public Services Research and works in science-policy coordination for the John Muir Institute of the Environment, University of California, Davis. He also continues to be active with his research on chemical contamination, in particular selenium issues, as an Emeritus Senior Scientist with the US Geological Survey. Dr. Luoma's third active appointment is as a Scientific Associate with The Natural History Museum in London, UK where he has worked for six years in collaboration with Dr. Philip Rainbow on metal and metalloid contamination issues. The latter collaboration resulted in a text, *Metal Contamination in Aquatic Environments: Science and Lateral Management* published in December 2008 by Cambridge University Press. He holds a B.S. and M.S. in Zoology from Montana State University, and a Ph.D. in Marine Biology from the University of Hawaii, Honolulu. Dr. Luoma is Editor-in-Chief of *San Francisco Estuary & Watershed Science*. From 2000 – 2003 he was the first Lead Scientist for the CALFED Bay-Delta program where he developed a multi-million dollar science program for the San Francisco Bay-Delta in a politically contentious environment. Dr. Luoma is a Fellow in the American Association for the Advancement of Science and was a W. J. Fulbright Distinguished Scholar in the UK in 2004. He received the rank of Meritorious Senior Government Employee from the President of the United States in 2006. Dr. Luoma has served on seven U.S. Environmental Protection Agency (EPA) Science Advisory Board sub-committees and on committees that produced books on contaminant bioavailability from sediments and soils for both the Canadian National Research Council (1988) and the U.S. National Research Council-National Academy of Sciences (2000-2003). He has authored about 200 peer-reviewed publications and two major books. Dr. Luoma's recent research interests include development of models designed to facilitate a next generation of contaminant management approaches, environmental implications of nanotechnologies, and other aspects of fate and effects of chemical contamination in aquatic environments, as well as water management in semi-arid environments. He has a strong interest in coordination of policy with science and in managing the science dialogue constructively in contentious environments. Dr. Luoma has worked on mining issues and selenium issues for more than 20 years, with numerous publications in the peer reviewed literature. His recent co-authored cover article with Theresa Presser is illustrative of these interests. "Emerging Opportunities in Management of Selenium Contamination" will appear in November 2009 in *Environmental Science and Technology*. Dr. Luoma recently worked with the County of Orange (California) to develop a site-specific objective for selenium in the Newport Bay watershed and is working with EPA Region 9 in developing a similar objective for San Francisco Bay.

Maest, Ann

Stratus Consulting, Inc.

Dr. Ann Maest is an Aqueous Geochemist specializing in the fate and transport of natural and anthropogenic contaminants in groundwater, surface water, soil, and sediment at Stratus Consulting, Boulder CO. She holds a B.A. in Geology from Boston University, an M.A. in Geochemistry and Sedimentology, and a Ph.D. in Geochemistry and Water Resources from Princeton University. Dr. Maest's major work over the last 18 years has been on the effects of mining on water quality. As a consultant, she has designed, conducted, and managed groundwater and surface water hydrogeochemistry studies at mining and other sites and worked on independent monitoring and community capacity building projects in the United States and Latin America. Dr. Maest was a research geochemist at the U.S. Geological Survey, where she conducted research on metal and metalloid speciation in surface water and groundwater. As a senior scientist at Environmental Defense Fund, she designed pollution prevention approaches for mining and manufacturing facilities. Dr. Maest has published numerous articles on the fate and transport of metals in natural waters, testified as an expert in large environmental trials, and served on several National Academy of Sciences committees related to mining and minerals research issues and on international committees on mining and sustainable development.

Maggard, Randall

Argus Energy WV, LLC

Mr. Randall Maggard is Manager of Environmental Compliance for Surface and Underground Operations of Argus Energy WV, LLC, in Dunlow WV. He holds an A.S. in Chemistry and an A.A.S. in Civil Engineering Technology from the University of Kentucky. Mr. Maggard has been involved in the environmental aspects of the coal mining industry for over 25 years. Having degrees in both chemistry and civil engineering technology—with a strong background in environmental science—has enabled him to develop a keen understanding of the effects of coal mining on both the terrestrial and aquatic environments. A self-taught naturalist, Mr. Maggard has developed superior communication skills with experts in the fields of aquatic ecology and ecosystem restoration. He has served on the West Virginia Mine Drainage Task Force for over ten years, has presented numerous papers detailing the results of his and others research, and has conducted research with academic institutions such as Marshall University and West Virginia State University, as well as other various governmental agencies such as the U.S. Geological Survey and U.S. Office of Surface Mining Reclamation and Enforcement. As one of the few managers of a coal mining company conducting on-going in-house research activities on the successes and failures in ecological restoration, Mr. Maggard can contribute a great deal of expertise to the on-going mountaintop mining debate.

McCoy, Laidley E.

Potesta & Associates, Inc.

Dr. Laidley McCoy is Vice President at Potesta & Associates, Inc. in Charleston, WV. Dr. McCoy's key area of responsibility is the management of air and water projects and complex environmental compliance issues. He holds a B.S. in Zoology and an M.S. in Biological Sciences from Marshall University in Huntington, WV, and a Ph.D. in Aquatic Ecology from the University of Louisville. Dr. Laidley spent 18 years with the West Virginia Department of Environmental Protection (WVDEP). He worked in the Division of Water Resources for 12 years, the last three during which he was the Chief of Water Resources. Dr. McCoy then served as Deputy Director of WVDEP for one year and ultimately as WVDEP Secretary for three years. He has an intimate knowledge of National Pollutant Discharge and Elimination System (NPDES), Clean Water Act Section 401/404, and other water related permits. While employed at the WVDEP (i.e., Chief of Water Resources and as Director), Dr. McCoy was directly involved with evaluation of Environmental Impact Statements prepared by the West Virginia Department of Highways for roadway projects and the issuance of storm water construction permits for bridge/highway projects. He is a former Commissioner of the Ohio River Valley Water Sanitation Commission and a former chairman of the Ohio River Basin Commission.

McDaniel, John

Arch Coal, Inc.

Mr. John McDaniel is Director of Engineering and Technical Services for the Eastern operations of Arch Coal, Inc. He holds a B.S.E.T. in Mining Engineering from West Virginia Institute of Technology. Mr. McDaniel's current responsibilities included the management of an inactive mine property in Southern West Virginia, oversight and coordination of Clean Water Act Section 401 and 404 permitting activities in the region, and design and construction of new development activities. His current key projects include: Management of two surface mining operations; Development of an Environmental Operating Procedures for Clean Water Act Section 402 Compliance for implementation at the Eastern operations; Development of a Geographic Information System water monitoring data system; Completion of the first Environmental Impact Statement for a surface mine located in West Virginia sited on private lands; and Development of alternative mitigation concepts through the West Virginia Coal Association Environmental Technical Committee. Prior to working at Arch Coal, Inc., Mr. McDaniel worked as Director of Engineering for the West Virginia operations of Ashland Coal, Inc. that were serviced by the CSX railroad, in various engineering positions at Sharples Coal Corporation, and as Project Manager at Vande Linde, Inc., an environmental consulting firm. He is a member of the West Virginia Coal Association, serving as an Alternative Member of the Board of Directors and a member of the Environmental Technical Committee.

McMullen, L.D.

Snyder & Associates, Inc.

Dr. L.D. McMullen is the Water Resources Practice Leader for Snyder & Associates located in Ankeny, Iowa since January 2008. In this position he is responsible for solving water resource and quality problems for small and medium sized water utilities in Iowa and Mousouri. Snyder & Associates is a company of 200 employees located in six different offices. Dr. McMullen holds a B.S. in Civil Engineering, and an M.S. and a Ph.D. in Environmental Engineering, all from the University of Iowa. Prior to Snyder & Associates, Dr. McMullen was the Chief Executive Officer and General Manager of Des Moines Water Works, Des Moines, Iowa, having served in this capacity since 1986. He joined the utility in 1978 as a design engineer, was appointed director of engineering services in 1980, assistant general manager in 1985, and acting general manager in 1986. Prior to joining the utility, Dr. McMullen was an assistant professor in the engineering department at University of Iowa, Iowa City. During his tenure as General Manager at Des Moines Water Works, he provided leadership throughout the development and activation of the utility's ion-exchange nitrate removal facility; the recovery and restoration of water service to the nearly 200,000 residents of the city of Des Moines following the Flood of 1993; the completion of the aquifer storage and recovery demonstration project, being the first such undertaking in a deep Midwestern bedrock aquifer; the construction and implementation of a lime slurry feed control system; and the "design-build concept" construction and initial operation of the new 25 million-gallon-per-day water treatment plant at Maffitt Reservoir. Dr. McMullen served two terms as Chairperson of the Environmental Protection Agency's National Drinking Water Advisory Council and on the Drinking Water Committee of the Agency's Science Advisory Board. Additionally, he served on the Water Utility Council of the American Water Works Association and currently is a member of the Board of Directors of the Association of Metropolitan Water Agencies. Through a multi-year project commencing in 1999 supported by the U.S./Ukraine Partnership, Dr. McMullen serves as Water Quality Team Leader working with the Cherkasy, Ukraine Water Department in jointly researching and developing solutions to water quality problems for the 320,000 residents of this city located on the Dnipro River, in southeastern Europe.

Meyer, Joseph S.

Arcadis BBL

Dr. Joseph Meyer is a Principal Scientist with ARCADIS U.S., Inc. He received a B.S. in Chemical Engineering from Lehigh University and a Ph.D. in Zoology and Physiology from the University of Wyoming. Dr. Meyer has 33 years of experience in applied limnology and the fate and effects of environmental contaminants. As a professor at the University of Wyoming before joining ARCADIS, he conducted research in aquatic toxicology, ecology, and biogeochemistry. In addition to studying the toxicity of contaminants (e.g., aluminum, cadmium, copper, lead, nickel, selenium, silver, zinc; aromatic hydrocarbons in wastewaters from synthetic fossil fuel processes; and saline surface waters) to freshwater organisms, Dr. Meyer assisted the U.S. Environmental Protection Agency (USEPA) to develop the biotic ligand model of metal toxicity, which has become the central component in current and pending revisions of aquatic life criteria for many metals. He also consulted to U.S. Borax about tolerance of boron by trout populations in rivers in Argentina and the USA, and for Anhui Province in China about water pollution. At the University of Wyoming, he led a team of researchers investigating bioavailability and bioreactivity of waterborne and dietborne metals to aquatic biota. Dr. Meyer also researched photolysis of dissolved organic matter and its binding to copper; contributions of biofilm to diel cycling of zinc; effects of ammonia, dissolved oxygen, and bacterial infections on endangered Lost River suckers; effects of boron on trout; and toxicity of time-varying exposures to toxicants. Previously he conducted research on phosphorus cycling in eutrophic lakes; nitrogen budgets in constructed wetlands; chemical characteristics and toxicity of wastewaters from coal gasification, oil shale, tar sands and coalbed natural gas processing to aquatic biota; toxicity and bioaccumulation of uranium in trout; toxicity in stream waters near an oil refinery; toxicity of acidic precipitation and aluminum to fish; habitat requirements and population viability of northern spotted owls in the Pacific Northwest of the USA; and statistical analysis of population growth rates in aquatic invertebrates exposed to pollutants. At ARCADIS, Dr. Meyer has consulted on topics related to the toxicity of elevated pH, ammonia, saline waters, and mixtures of metals to aquatic organisms; toxicity of metalliferous ponds to birds; toxicity of mining-related activities and residues to aquatic and terrestrial organisms; and toxicity of PCBs to sediment organisms. He has lead-authored or co-authored 46 refereed journal articles, 1 refereed monograph, 12 book chapters, and 125 presentations at scientific meetings. Dr. Meyer was lead editor of a book titled “Toxicity of Dietborne Metals to Aquatic Organisms” (Society of Environmental Toxicology and Chemistry (SETAC) Press, 2005) and was lead author of a recent book titled “Effects of Water Chemistry on Bioavailability and Toxicity of Waterborne Cadmium, Copper, Nickel, Lead, and Zinc to Freshwater Organisms” (SETAC Press, 2007). Additionally, he has participated in six SETAC-Pellston workshops on topics related to hazard assessment of effluents, bioavailability of chemicals, aquatic life criteria for metals, water quality criteria development, dietborne metal toxicity, and tissue-residue approaches.

Michaud, Louise

Marston Canada Ltd.

Dr. Louise Michaud is a Principal and Senior Mining Consultant with Marston Canada Ltd., Alberta Canada. She holds a B.Sc. in Engineering Chemistry (Environmental Emphasis), and an M.Sc. and Ph.D. in Mining Engineering from Queen's University, Canada. Dr. Michaud has over 30 years experience in Mining Engineering and Environmental issues related to the mining industry, including work at active mining operations, in the consulting industry and in academia as a university professor. Her experience includes working for coal, oil sands, base metals, construction materials and industrial mineral operations. Dr. Michaud has worked on projects in Canada, the USA, the South Pacific, Indonesia and several Central and South American countries and has experience working with First Nations and aboriginal groups in Canada and internationally. Her areas of environmental expertise include the design, assessment and implementation of reclamation and mine closure plans, the assessment and remediation of acid rock drainage, the evaluation of surface and groundwater hydrology at mine sites, the design of water management and remediation systems, environmental management, environmental audits and due diligence reviews, environmental and socio-economic impact assessments, and regulatory issues and permitting. Dr. Michaud's areas of expertise in mining engineering include mine planning and economic analysis, reserve and resource evaluation, project feasibility studies, and engineering due diligence reviews and audits. While in academia, her research interests included the assessment of mine impacted waters and acid rock drainage and the design and implementation of prevention and remediation technology. Dr. Michaud is a registered professional engineer in Canada.

Miller, Glenn C.

University of Nevada

Dr. Glenn Miller is a Professor of Natural Resources and Environmental Science at the University of Nevada, Reno. He holds a B.S. in Chemistry from the University of California, Santa Barbara and a Ph.D. in Agricultural and Environmental Chemistry (1977) from the University of California at Davis. Following graduate studies, Dr. Miller spent a year of postdoctoral study at the EPA's Environmental Research Laboratory in Athens, Georgia. He was director of the graduate program in Environmental Sciences and Health at UNR from 1996-2006. Dr. Miller's current areas of research related to mining include closure of precious metals heaps, acid mine remediation using anaerobic sulfate reducing systems and mercury management at precious metals mines. He also has a long-term interest in environmental photochemistry of pesticides and other organic contaminants. Dr. Miller has also been active on policy issues related to mining and is a member of the Board of Directors of EarthWorks and the Environmental Law Alliance Worldwide (ELAW).

Montgomery, David R.

University of Washington

Dr. David Montgomery is a Professor in the Department of Earth & Space Sciences at the University of Washington. He holds a B.S. in Geology from Stanford University and a Ph.D. in Geomorphology from University of California, Berkeley. Dr. Montgomery is a Macarthur Fellow and studies geomorphology and the evolution of landscapes. His research interests include the dynamics of forested mountain stream systems, co-evolution of the Pacific salmon and the topography of the Pacific Northwest, the environmental history of Puget Sound rivers, interactions among climate, tectonics, and erosion in shaping mountain ranges, and giant glacial floods in eastern Tibet and Alaska.

Newbold, J. Denis

Stroud Water Research Center

Dr. J. Denis Newbold is a Research Scientist at the Stroud Water Research Center where he studies nutrient cycling, organic particle transport, and riparian zone influences in stream ecosystems. He holds a B.S. in Engineering from Swarthmore College, an M.S. in Hydrology from Cornell, and a Ph.D. in Aquatic Ecology from University of California. From 1977 through 1983, Dr. Newbold worked in the Environmental Sciences Division at Oak Ridge National Laboratory, where he was involved in both theoretical development and experimental analysis of the concept of nutrient spiraling (nutrient cycling combined with downstream transport). Since joining the Stroud Center (then part of the Academy of Natural Sciences of Philadelphia) in 1983, his work has included experimental studies of the spiraling of nitrogen, phosphorus, dissolved organic carbon and particulate organic carbon, nutrient exports in tropical headwater streams, and investigations of the role of riparian forest buffers in mitigating nonpoint source pollution. Dr. Newbold's interesting in Mountaintop Mining and Valley Fill included exploratory modeling analyses of the contribution of headwater streams to downstream metabolism in a river network, presented at two annual meetings of the North American Benthological Society (2002 and 2003), and to the U.S. Environmental Protection Agency Region III Workshop on Headwaters and Associated Wetlands, June 2006. He currently serves as chair of the Chester County Water Resources Authority, Chester County, PA.

Niyogi, Dev

Missouri University of Science & Technology

Dr. Dev Niyogi is an Associate Professor in the Department of Biological Sciences at the Missouri University of Science & Technology (formerly University of Missouri-Rolla). He is also an Investigator in the Environmental Research Center at this school. He holds a B.A. in Biology from Swarthmore College and a Ph.D. in Environmental Biology from the University of Colorado. Dr. Niyogi conducted postdoctoral research at the University of Otago, and recently was a visiting researcher at the University of Canterbury (both in New Zealand). His research focuses on ecosystem processes, including primary production and decomposition, in streams, especially those under anthropogenic stress. Dr. Niyogi has conducted extensive research on the response of ecosystem processes to the complex effects of acid mine drainage in headwater streams in Colorado and New Zealand. He also studies nutrient transport and retention in pristine and agricultural streams in Missouri and New Zealand. Dr. Niyogi's research and publications range from molecular analyses of stream microbial communities to using biota and processes as measures of stream health in stressed ecosystems. He is an active member of the following scientific societies: Ecological Society of America, North American Benthological Society, American Society of Limnology and Oceanography, and the New Zealand Freshwater Sciences Society.

Oris, James

Miami University of Ohio

Dr. James Oris is a Professor in the Department of Zoology and is the Associate Dean for Research and Scholarship at Miami University in Oxford, Ohio. He received a B.A. in Biology from Wittenberg University (1979) and a Ph.D. in Environmental Toxicology and Fisheries and Wildlife from Michigan State University (1985). Dr. Oris's areas of research interest center on the ecological toxicology of chemicals in aquatic systems. His primary interest is the study of the fate and effects of polycyclic aromatic hydrocarbons and mercury in freshwater systems. Sediment toxicity, photo-induced toxicity, long-term reproductive toxicity, routes of uptake, and environmental factors that may alter fate and effects have been areas of study. These studies have ranged from the use of molecular biomarkers to landscape-scale ecological assessments. Dr. Oris is also interested in standard toxicity test development and methodology, including the statistical modeling and analysis of toxicity dose-response relationships. He has published over 90 peer-reviewed scientific research articles and over 170 abstracts for presentations at scientific meetings. Dr. Oris has served on editorial or review boards of 8 journals, 6 books and 9 granting agencies. He served as the President (2004-2005) of the Society of Environmental Toxicology and Chemistry (SETAC) North America.

Palmer, Margaret A.

University of Maryland

Dr. Margaret Palmer is Professor of Entomology and Director of the Chesapeake Biological Laboratory at the University of Maryland. She holds a B.S. in Biology from Emory University, and an M.S. and Ph.D. in Coastal Oceanography from the University of South Carolina. The broad objective of Dr. Palmer's research is to understand what controls stream ecosystem structure and function. She specifically focuses on restoration ecology and how land use, hydrology and geomorphology influence the health of running-water ecosystems. Her current research is concentrated on: effects of land use change on stream ecosystems; synthesizing the scientific status of riverine restoration nationally (NRRSS project); theory and experimentation in restoration; and how land use changes influence stream fauna and ecosystem processes through changes in the riparian zone, the hydrology, and channel characteristics. Dr. Palmer has received numerous awards and special recognition, and is a member of various professional organizations in the fields of ecology and hydrologic science.

Patten, Duncan

Montana State University

Dr. Duncan Patten is Research Professor with the Department of Land Resources and Environmental Sciences and affiliate faculty with the Big Sky Institute at Montana State University. He is also Professor Emeritus of Plant Biology and past director of the Center for Environmental Studies at Arizona State University. Dr. Patten holds an A.B. degree from Amherst College, an M.S. from the University of Massachusetts at Amherst, and a Ph.D. from Duke University. His research interests include arid and mountain ecosystems, especially the understanding of ecological processes of riparian, wetland, and riverine ecosystems. Dr. Patten's research has also involved studies of ecosystem indicators of watershed condition including remote sensing of indicators, biocomplexity of natural and human system interactions in western rangelands, and conceptual modeling of national park ecosystems. He was Senior Scientist of the Bureau of Reclamation=s Glen Canyon Environmental Studies, overseeing the research program evaluating effects of operations of Glen Canyon Dam on the Colorado River riverine ecosystem. Dr. Patten was founding president of the Arizona Riparian Council, president of the Society of Wetland Scientists, and Business Manager of the Ecological Society of America. He is a Fellow of the American Association for the Advancement of Science, has been a member of eleven National Academy of Science/National Research Council committees, chairing two; the National Academy of Sciences (NAS) Board on Environmental Studies and Toxicology; and the NAS Commission on Geoscience, Environment and Resources. He also has served on the National Science Foundation Environmental Biology/Ecological Sciences Panel. Dr. Patten presently serves on the U.S. Environmental Protection Agency Science Advisory Board. He was involved with the Heinz Center's "State of the Nation's Ecosystems" project and served on an Independent Science Board guiding restoration and science for the California Bay Delta Authority river/water/levee programs.

Petty, J. Todd

West Virginia University

Dr. J. Todd Petty is an Associate Professor in the Division of Forestry at West Virginia University (WVU) where he also serves leadership roles in the WVU Environmental Research Center and an inter-collegiate Master's program in Integrated Energy and Environmental Studies. He holds a B.A. in Biology from the University of Virginia, and an M.S. and Ph.D. in Forest Resources from the University of Georgia. Dr. Petty has served on numerous state and regional advisory committees related to acid mine drainage remediation, stream restoration, nutrient criteria, anti-degradation policy, water quality trading, and trout stream designation. His lab conducts basic and applied research on stream and watershed ecology and restoration. Dr. Petty has over fifteen years of research experience in Appalachian watersheds. His recent research efforts have focused on the spatial ecology of stream fish assemblages, the meta-population dynamics of brook trout in West Virginia watersheds, and the spatial ecology of fishes and benthic invertebrates in mined watersheds. Through this research, Dr. Petty's lab has developed an analytical and decision making process that can be used to target high priority areas for protection and restoration of fish diversity. This research is being applied to efficient restoration of abandoned mine lands, culvert replacement programs, acid precipitation remediation, and strategic use of off-site mitigation requirements in the mountain-top mining districts of West Virginia.

Rankin, Edward T.

Ohio University

Mr. Edward Rankin is an Environmental Management Associate with Ohio University at the Institute for Local Government Administration and Rural Development (ILGARD) which is in the Voinovich School of Leadership and Public Affairs located in Athens, OH. Prior to this he was an Aquatic Ecologist with Ohio Environmental Protection Agency for almost 18 years. Mr. Rankin holds a B.S. in Biology from St. Bonaventure University and an M.S. in Zoology from The Ohio State University. His research centers around the effects of environmental stressors such as habitat and flow regime on aquatic life, development and application of stream habitat assessment methodologies, development and application of biological criteria and biological-based chemical criteria for aquatic life. During his time at Ohio University, Mr. Rankin has, in concert with Midwest Biodiversity Institute, conducted biosurveys of mine-affected watersheds in southeast Ohio with a goal of improving the accuracy of acid mine abatement studies while incorporating data on habitat, nutrients and sediment impacts. He is particularly interested in the application of research to management of aquatic life issues and has extensive experience with the development of tiered aquatic life uses and use attainability analyses in streams. Mr. Rankin recently served on the National Academy of Sciences panel on urban stormwater impacts and was a lead investigator on a U.S. Environmental Protection Agency STAR grant refining biological endpoints and identifying stressors in watersheds in the Western Allegheny Plateau ecoregion of southeast Ohio.

Redente, Edward

Colorado State University

Dr. Edward Redente is a Professor Emeritus at the Warner College of Natural Resources, Colorado State University and Vice President and Principal Ecologist, MWH Americas, Inc. based in Fort Collins, Colorado. Dr. Redente has a B.A. in Geography and Biology from Western Michigan University (1972) and a M.S. and Ph.D. in Range Science from Colorado State University (1974) (1980). He has over 30 years of experience in ecology and specializes in restoration of disturbed lands. Dr. Redente is internationally recognized as an expert in mined land reclamation and ecosystem level monitoring to assess the effects of reclamation techniques. He has conducted reclamation research on virtually every major aspect of reclamation including soil fertility, soil ecology, metal toxicity in plants, seeding and planting techniques, species performance, and seed mixture development to name just a few. Dr. Redente has worked on reclamation projects in most every state in the western United States and in several countries including Canada, Australia, China, Brazil, and Peru. In 1992 he worked with the World Bank and the Peruvian Ministry of Energy to develop reclamation guidelines for the hard rock mining industry. Dr. Redente has published over 100 scientific articles on various aspects of disturbed land ecology and reclamation. He was on the faculty at Colorado State University from 1976 through 2006. During that time Dr. Redente was a research and teaching professor and also served as the Department Head of Forest, Rangeland and Watershed Stewardship, Director of the Center for Ecological Risk Assessment, Associate Vice President of Research for the University, and both Research Dean and the Dean of the Warner College of Natural Resources.

Rier, Steven T.

Bloomsburg University

Dr. Steven Rier is Associate Professor of Freshwater Ecology in the Department of Biological and Allied Health Sciences at Bloomsburg University in Bloomsburg, PA. He holds a B.S. and M.S. from Central Michigan University, and a Ph.D. from the University of Louisville. Dr. Rier's primary academic areas are in freshwater ecology and environmental biology and his research area is in stream ecology. His research interests encompass many aspects of stream ecology but mainly focus on the role that microorganisms such as algae, bacteria, and fungi play in regulating stream ecosystem function and how human impacts can alter these dynamics. Dr. Rier's lab is currently investigating how impacts such as acid mine drainage from abandoned coal mines alters stream ecosystem functions such as the decomposition of organic matter and uptake and mineralization of nitrogen and phosphorus. He is also currently investigating how extracellular enzymes released by microorganisms in streams might be utilized to better understand how stream ecosystems respond to human impacts.

Rodewald, Amanda

Ohio State University

Dr. Amanda Rodewald is an Associate Professor of Wildlife Ecology in the School of Environment and Natural Resources at The Ohio State University. She holds a B.S. in Wildlife Biology from The University of Montana, an M.S. in Zoology from The University of Arkansas, and a Ph.D. in Ecology from The Pennsylvania State University. Dr. Rodewald's research program seeks to understand the mechanisms guiding landscape-scale responses of animal communities to anthropogenic disturbances, which requires her to work at multiple spatial scales and across multiple levels of biological organization. As such, her research touches on a variety of sub-disciplines, including conservation biology, landscape ecology, population demography, community ecology, behavioral ecology, and ecological restoration. Her current projects aim to identify the ecological processes that regulate bird populations in urban and agroforestry ecosystems in North and South America, to understand the effects of invasive species on trophic interactions, and, more recently, to evaluate how biodiversity conservation will be impacted by global change and climate adaptation. She has published over 50 scientific papers in a broad range of journals including Ecology, Ecological Applications, Biological Conservation, Biological Invasions, and Restoration Ecology. Dr. Rodewald serves as an Associate Editor for The Auk, a leading ornithological journal, has served as an Associate Editor for the Journal of Wildlife Management, and is a reviewer for 20 scientific journals. In addition, Dr. Rodewald contributes to the national and state-level environmental decision-making process in her ad-hoc advisory and panel roles with National Science Foundation, U.S. Department of Agriculture Forest Service, U.S. Fish and Wildlife Service, Ohio Department of Natural Resources, and North American Bird Conservation Initiatives.

Rosemond, Amy

University of Georgia

Dr. Amy Rosemond is an Assistant Professor in the Odum School of Ecology at the University of Georgia. She holds a B.S. in Zoology and M.A. in Biology from the University of North Carolina-Chapel Hill and a Ph.D. in Biology from Vanderbilt University. Dr. Rosemond's Masters thesis work investigated the effects of acidification on riverine assemblages in the Great Smokey Mountains National Park. Her doctoral work focused on primary controls of food web interactions in headwater streams at Oak Ridge National Laboratory. Dr. Rosemond was awarded a Postdoctoral Fellowship in Environmental Biology from the National Science Foundation to study food webs and nutrient effects on tropical lowland streams. Her current research focuses on understanding global change effects on aquatic ecosystems, including effects of land use change, nutrient enrichment and species invasion effects on food webs, species composition and carbon and nutrient flux. Dr. Rosemond has received research support from both the National Science Foundation and the U.S. Environmental Protection Agency and has led large-scale manipulative experiments to understand long-term effects of global change on headwater stream ecosystems. She has served as a panel member and ad hoc reviewer for the National Science Foundation, has served as a reviewer for many ecological journals and served on the Editorial Board of Freshwater Biology. Dr. Rosemond is currently serving on state- and national-level advisory boards, including advising on Georgia's state water plan. She teaches about the structure and function of aquatic ecosystems and the implications of global change effects at the University of Georgia.

Rosi-Marshall, Emma

Cary Institute of Ecosystem Studies

Dr. Emma Rosi-Marshall is an Associate Scientist at the Cary Institute of Ecosystem Studies in Millbrook, NY. She holds a B.S. from the University of Michigan, and an M.S. in Entomology and Ph.D. in Ecology from the University of Georgia. Dr. Rosi-Marshall was a Post-Doctoral researcher at the University of Notre Dame from 2002-2004. Before joining the scientific staff at the Cary in August 2009, she was an Assistant Professor of Biology at Loyola University Chicago. Dr. Rosi-Marshall conducts research on freshwater ecosystems ranging from headwater streams to large rivers. Her research focuses on aquatic ecosystem function including nutrient cycling, secondary production and food web dynamics. Dr. Rosi-Marshall's current work ranges from developing new techniques to examine the ecological effects of pharmaceutical compounds on stream ecosystems to measuring the effects of climate change on invertebrates dwelling in the Salmon River in Idaho. In addition, she is a lead investigator examining how the operations of Glen Canyon Dam may influence the food resources supporting the endangered Humpback Chub.

Roy, Sujoy B.

Tetra Tech Inc.

Dr. Sujoy Roy is a Director of Tetra Tech Inc., located in Lafayette, CA. He holds a B. Tech. in Civil Engineering from Indian Institute of Technology, New Delhi, India (1990), and an M.S. and Ph.D. in Civil and Environmental Engineering from Carnegie Mellon University (1992, 1995). Dr. Roy is an environmental engineer with extensive experience studying water quality in aquatic systems in applied research and regulatory contexts, and has been involved in studies at the local, regional and national levels and participated in or directed studies with significant modeling, monitoring, and pilot testing components. Particular areas of interest include the modeling and development of management plans to address water quantity and quality concerns for drinking water source protection and for addressing ecological impacts. In most instances, this work is motivated by current impairment, or anticipation of future growth and climate change. Recent studies include the development of a selenium fate and transport model in San Francisco Bay, modeling and development of restoration plans for the restoration of the Salton Sea, and national assessments of water withdrawal sustainability in view of growing demands for electric cooling needs. Dr. Roy has provided support to the U.S. Environmental Protection Agency in the development of nutrient standards in surface waters in the states of California, Nevada, Arizona, and Hawaii. He also leads a multidisciplinary team of climate researchers evaluating climate change impacts to municipal water supplies from the Owens Valley watershed to Los Angeles. Various projects he has completed in the last five years include: modeling of contaminants of drinking water concern in California's Central Valley and Sacramento-San Joaquin Delta, the development of a detailed master plan to manage land uses in the Mokelumne River watershed, and multiple studies evaluating the fate and transport of mercury in aquatic systems. Dr. Roy currently serves on a National Academy of Sciences panel on Missouri River Basin restoration.

Saperstein, Lee

Missouri University of Science and Technology

Dr. Lee Saperstein is Dean Emeritus of the School of Mines and Metallurgy and Professor Emeritus of Mining Engineering at the University of Missouri-Rolla (UMR). He holds a B.S. in Mining Engineering from the Montana School of Mines, now Montana Tech, and a Ph.D. in Engineering Science from Oxford University, which he attended as a Rhodes Scholar. Dr. Saperstein has been a Mining Engineering faculty member at The Pennsylvania State University, the University of Kentucky, and the University of Missouri-Rolla. He was Dean of the School of Mines and Metallurgy at UMR for 11 years. Dr. Saperstein is a licensed Professional Engineer and is an expert in the environmental impacts of mining. He has also served ABET, Inc., the recognized accreditor for engineering, as its President. Dr. Saperstein is a Distinguished Member of the Society for Mining, Metallurgy, and Exploration, Inc. (SME), a Fellow of ABET and holder of its Grinter Award, and recognized as a Distinguished Alumni by Montana Tech. He has served on a number of national advisory committees, including the National Research Council Committee on Surface Mining and Reclamation (COSMAR), the recent NRC Committee on Assessing Corrosion Education (ACE), two recent National Institutes of Occupational Safety and Health (NIOSH) panels on training grants, and is currently assisting NIOSH in establishing a National Occupational Research Agenda (NORA) Mining Sector Council.

Schoenholtz, Stephen

Virginia Polytechnic Institute & State University

Dr. Schoenholtz is the Director of the Virginia Water Resources Research Center and Professor of Forest Hydrology and Soils in the College of Natural Resources at Virginia Polytechnic Institute and State University. He holds B.S. degrees in Forest Science and Biology from the Pennsylvania State University, and an M.S. and Ph.D. in Forest Soil Science from Virginia Polytechnic Institute and State University. Dr. Schoenholtz has also served on faculties in the College of Forestry at Oregon State University and the College of Forest Resources at Mississippi State University. He has supervised 31 graduate students, developed a multi-million dollar research program, and published 79 papers and book chapters to date. Dr. Schoenholtz's teaching and research interests involve interactions between land management and water and soil resources. He also has a strong interest in the effects of global climate change on water resources and the role of forest soils in sequestering and storing carbon.

Simmons, Jeffrey

Mount St. Mary's University

Dr. Jeffrey Simmons is Associate Professor of Environmental Science at Mount St. Mary's University in Emmitsburg, MD, and Co-Director of the Mount St. Mary's Environmental Science program. He holds a B.A. in Ecology and Evolutionary Biology from the University of Rochester, and an M.S. and Ph.D. in Forest Science and Soil Science from Cornell University. Previously Dr. Simmons was Associate Professor of Environmental Science and Coordinator of the Environmental Science program at West Virginia Wesleyan College, and an Assistant Research Professor at the University of Maine's School of Plant, Soil and Agricultural Science. He has served as the Director of the Highlands Institute for Environmental Research and Education and has worked for private industry as an Environmental Chemist. Dr. Simmons is also certified as a Senior Ecologist by the Ecological Society of America. His research addresses the impact of human activities on terrestrial and aquatic ecosystems. Dr. Simmons has conducted research on the terrestrial and aquatic ecological impacts of surface mining, remediation of mine-impacted streams, effects of climate change on forest soils, and the use of mosses as indicators of heavy metal pollution. Currently he is also investigating the effects of nutrients from wastewater effluent on stream productivity and decomposition

Simpson, Thomas E.

CH2M Hill Inc.

Dr. Thomas Simpson is currently a Technology Fellow with CH2M Hill Inc. in Atlanta, GA. He holds a B.S. in Biology from Middle Tennessee State University, an M.S. in Zoology from Louisiana State University, and a Ph.D. in Biological Sciences from Florida State University. Dr. Simpson has experience in performing environmental assessments for industrial clients, mining, coalbed methane gas development, and major land developments. He has also directed programs for Environmental Impact Study (EIS) investigations for the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers. Dr. Simpson has additional experience in providing expert testimony related to site certification of utility projects, hearings on developing implementing regulations for toxicity-based National Pollutant Discharge Elimination System (NPDES) permits, litigation related to mining impacts, and Clean Water Act Section 404 review of wetlands mitigation programs. He has participated in several national programs attending by invitation including the Corporate Wetlands Restoration Program for Coastal America, the White House Conference on Cooperative Conservation, and the National Summit on Infrastructure and the Environment. He also authored the Biodiversity Planning document for the London 2012 Olympics. He has served on the faculties for Middle Tennessee State University, Wake Forest University, and Agnes Scott College directing courses in Marine Biology, Ecology, Invertebrate Ecology, and General Biology. As a consultant to the U.S. Geological Survey, Dr. Simpson conducted taxonomic surveys of samples obtained from all over the U.S. and developed quality assurance methods used in species verification. He was a founding member of the Society of Wetlands Scientists, was Chair of the Society of Wetland Scientists Certification Panel and is certified as a Professional Wetland Scientist.

Singer, Robert

Ecology and Environment, Inc.

Dr. Robert Singer is a Principal Level Ecologist at Ecology and Environment, Inc. (E&E), an international environmental consulting firm with 80 scientific and engineering disciplines, in Lancaster, NY. He holds a B.S. in Biology from the University of Illinois at Urbana, and an M.S. and Ph.D. in Zoology from the University of Illinois at Urbana. Dr. Singer provides leadership to the technical staff (ecologists, biologists, engineers, chemists, geologists and other disciplines) on technically advanced and complicated projects. He also serves as project manager on a wide range of commercial energy projects, including projects that implement clean coal technologies, carbon capture, and carbon sequestration. Dr. Singer's past experience as a university professor makes him particularly skilled and an effective mentor but should not be overshadowed by his in-depth knowledge of ecological systems. He has also been involved in numerous projects over his career in which involved conflicts between immediate societal resource-based needs and the environment. This experience allows him to effectively and efficiently recommend solutions grounded in science. Dr. Singer spent approximately 20 years of his career in various capacities in academia. He performed research on the ecological effects of acid rain in lakes and streams in the Adirondack Mountains of New York and in New Hampshire. Dr. Singer served on an advisory committee for the U.S. Environmental Protection Agency regarding acid rain. Most recently, Dr. Singer oversaw a year long intensive study to measure ecological functions of headwater streams at 8 different sites in southern West Virginia. He has performed several environmental investigations for drinking water reservoirs in NY, Ohio, and Massachusetts. Dr. Singer is a member of the North American Benthological Society and the New York State Wetlands Forum.

Skousen, Jeffrey G.

West Virginia University

Dr. Jeffrey Skousen is Professor of Soil Science in the Plant and Soil Science Department of West Virginia University (WVU) and the Extension Land Reclamation Specialist in West Virginia. He holds a B.S. and M.S. in Botany and Range Science from Brigham Young University, and a Ph.D. in Range Science from Texas A&M University. Dr. Skousen's research expertise involves: 1) acid mine drainage prediction, control and treatment, 2) overburden and soil analyses, 3) reclamation and revegetation of disturbed lands, 4) reforestation, 5) highway reclamation, and 6) post-mining land use development. Since coming to WVU in 1986, he has developed a multi-million dollar research program and has published over 100 articles in journals and other scientific literature. Dr. Skousen's Extension duties involve providing information and new technologies to the mining industry and regulatory agencies through presentations and articles. He provides training and consulting for coal operators, regulators, and land owners on land reclamation, soil conservation, and water quality issues, and visits individual sites for consulting. Dr. Skousen coordinates an annual acid mine drainage symposium and leads numerous acid mine drainage tours. He is a member of the science team of the Appalachian Regional Reforestation Initiative and coordinated the 2008 Appalachian Regional Reforestation Initiative Conference. Dr. Skousen's teaching responsibilities include an introductory environmental science course at WVU with about 100 students. He also teaches a senior/graduate level course in reclamation of disturbed lands. Dr. Skousen currently has three graduate students and serves on the committees of 14 others. He has served on numerous national committees and councils on reclamation, including the president of the American Society of Mining and Reclamation (1991 and 2003) and as an associate editor for the Journal of Environmental Quality for six years.

Soucek, David

Illinois Natural History Survey

Dr. David Soucek is an Associate Professional Scientist at the Illinois Natural History Survey, which is part of the Institute of Natural Resource Sustainability at the University of Illinois at Urbana-Champaign (UIUC), and an adjunct assistant professor in the Departments of Natural Resources and Environmental Sciences, and Entomology at UIUC. He holds a B.A. in Zoology from Miami University, an M.S. in Zoology from Clemson University, and a Ph.D. from the Department of Biology at Virginia Polytechnic Institute and State University. Dr. Soucek is an ecotoxicologist focusing on effects of pollutants on aquatic invertebrates. Much of his research has involved problems associated with coal mining, including acid mine drainage, aluminum precipitation, and total dissolved solids (TDS). Dr. Soucek has conducted field and laboratory studies using physiological and organism level endpoints as well as measures of community structure and ecosystem function. His recently completed and ongoing work on TDS toxicity has been used in support of development of water quality standards for sulfate and chloride in Illinois, Iowa, and other states. Dr. Soucek currently is conducting studies in support of water quality standard updates for TDS, boron, manganese, fluoride, and other anions.

Spadaro, Jack

Independent Consultant

Mr. Jack Spadaro is an independent consultant and an expert in mine safety and health and environmental engineering. He retired in 2004 from the U.S. Department of Labor's Mine Safety and Health Administration (MSHA) where he worked as Director of the National Mine Health and Safety Academy. Mr. Spadaro holds a B.S. in Mining Engineering from West Virginia University. He has dedicated his life to preventing environmental damage from coal mining activities and is among the nation's leading experts on coal waste disposal and valley fill construction. Mr. Spadaro was a young engineer and instructor at West Virginia University's School of Mines, one of the world's top institutions for training mining engineers, when the 1972 Buffalo Creek WV mining disaster occurred. He was the author of the report on the causes of the coal waste dam failure that was produced by the governor's commission of inquiry. Mr. Spadaro was also responsible for the geotechnical engineering study of the October 11, 2000 failure of the Martin County, Kentucky coal slurry impoundment that discharged more than 300 million gallons of coal slurry into rivers and streams. He has since spent nearly 38 years in public service, safe-guarding coal miners and their communities from life-threatening environmental and health and safety hazards caused by mining operations.

Stout, Benjamin Mortimer III

Wheeling Jesuit University

Dr. Benjamin Stout is a professor of Biology at Wheeling Jesuit University and has worked extensively to track mountaintop removal and coal mining impacts on water, including a 2009 report on well water for the Judicial Subcommittee of the West Virginia Legislature. He holds a B.S. in Agriculture and Forestry from West Virginia University, an M.S. in Biology from Tennessee Technological University, and a Ph.D. in Biology from Virginia Polytechnic Institute and State University. Dr. Stout is an aquatic ecologist that has been working in mined areas of Appalachia for almost twenty years, and has published extensively on environmental impacts associated with mountaintop removal and coal mining. He is currently principle investigator for a U.S. Environmental Protection Agency Community Action for a Renewed Environment (CARE) Level II award representing the Appalachian CARE Communities in southern West Virginia.

Swackhamer, Deborah

University of Minnesota

Dr. Deborah Swackhamer is Professor of Environmental Chemistry in the Division of Environmental Health Sciences, School of Public Health, and also Co-Director of the Water Resources Center, at the University of Minnesota, Twin Cities. She holds an M.S. in Water Chemistry, University of Wisconsin, Madison, Wisconsin and a Ph.D. in Oceanography and Limnology, University of Wisconsin, Madison, Wisconsin. Dr. Swackhamer joined the faculty of the University of Minnesota in 1987 following postdoctoral experience at Indiana University, Bloomington. She has studied the processes affecting the behavior and fate of persistent organic compounds including PCBs, dioxins, and pesticides in the Great Lakes for the past 20 years, including sediment accumulation, source determinations, water column processes, and food web bioaccumulation. Currently, Dr. Swackhamer's research has expanded to include exposures and impacts of endocrine disruptors in aquatic systems. She has been active in numerous professional societies, including the Environmental Division of the American Chemical Society, the Society of Environmental Toxicology and Chemistry, and the International Association of Great Lakes Research. Dr. Swackhamer served as Chair of the Committee on Drinking Water Contaminants for the Water Science and Technology Board, National Research Council, National Academy of Sciences from 1998-2002; Chair, Gordon Research Conference, Environmental Sciences: Water, June 2008, New Hampton, NH.; and is currently a Member of the Science Advisory Board of the International Joint Commission of the U.S. and Canada. She serves on the Editorial Advisory Board for the journal Environmental Science & Technology, and is Chair of the Editorial Advisory Board for the Journal of Environmental Monitoring.

Swan, Christopher M.

University of Maryland

Dr. Christopher Swan is an Associate Professor in the Department of Geography & Environmental Systems at the University of Maryland, Baltimore County, and a Faculty Fellow in the Center for Urban Environmental Research and Education. He holds a B.S. in Biology from West Chester University, and an M.S and Ph.D. in Biology from the University of Maryland, College Park. Dr. Swan's research addresses problems broadly in environmental science, with a focus on freshwater ecology, community structure and associated ecosystem functions and services. His interests range from applied areas such as the effect of anthropogenic stress on trophic interactions, to assembly of species associations in riverine networks. A major focus of Dr. Swan's work has been how loss of species alters ecosystem processes in streams, particularly organic matter decomposition. He has recently been exploring how a pollutant of rising concern in the mid-Atlantic region, road salt deicer, can alter consumer resource interactions in streams and ponds, and the implications for both carbon and nitrogen dynamics.

Sweeney, Bernard W.

Stroud Water Research Center

Dr. Bernard Sweeney is presently Director, President, and Senior Research Scientist at the Stroud Water Research Center, an independent research institution focused on stream and river ecology located in Avondale, PA. He holds a B.S. in Biology from Delaware Valley College of Science and Agriculture, PA, and a Ph.D. in Biology from the University of Pennsylvania. Dr. Sweeney is also Vice-President of the Asociacion Centro de Investigacion Stroud, a non-profit Costa Rican corporation established to facilitate research and educational programs related to tropical stream ecology. He has an adjunct Professor appointment at the University of Pennsylvania. Dr. Sweeney has published on (and his research interests include) the following: The role of water quality monitoring in conservation, population and community ecology of temperate and tropical aquatic invertebrates, pollution assessment in temperate and tropical streams using macroinvertebrates, the role of streamside forests in the structure and function of stream and river ecosystems, factors affecting the growth and survivorship of trees in riparian forests, the effects of global warming on stream ecosystems, genetic variation and gene flow among populations of stream insects, DNA barcoding of aquatic macroinverebrates, the effects of diel and seasonal temperature change on aquatic insect populations, bioenergetics and secondary production of aquatic insects, and the bioassay of toxic materials in aquatic systems. He received the 2003 "National Award of Excellence in Conservation" from the U.S. Department of Agriculture Natural Resource Conservation Service for his research and work on the restoration of streams and their riparian corridors. In 2006, Dr. Sweeney received the "Lifetime Achievement Award " from the Chesapeake Bay Foundation and the "Margaret Douglas National Medal" from the Garden Club of America for achievement in conservation education. He was appointed in 2008 to co-lead the Freshwater section of the International DNA Barcode for Life project. In 2009, Dr. Sweeney was elected an honorary member of the Garden Club of America for his work on riparian forest restoration. He is past president of the North American Benthological Society (NABS) and currently is Co-Chairman of the society's Taxonomic Certification Program and the Strategic Planning Committee for the journal. Dr. Sweeney will receive the Distinguished Service Award from NABS in 2010. He also serves on the board of directors for the Georgia Farm Foundation (currently President) and Erthnxt and serves as an advisor on Pennsylvania Department of Environmental Protection's Flood Protection and Storm Water Manual Committees and the Brandywine Conservancy's Environmental Committee.

Townsend, Philip

University of Wisconsin

Dr. Phil Townsend is an Associate Professor in the Department of Forest and Wildlife Ecology at the University of Wisconsin – Madison and taught at the University of Maryland Appalachian Laboratory prior to coming to the University of Wisconsin in 2005. He holds a B.A. from the University of Virginia, and a Ph.D. in Geography from the University of North Carolina. Dr. Townsend studies the connections between forests and watersheds, and uses remote sensing, field measurements and modeling to understand the natural and human drivers of fluxes of water, sediments and nutrients from forested and mixed-use watersheds and wetlands. He studies how natural disturbances (e.g., insect infestations) and human perturbations (e.g., land use change) disrupt ecosystem functions of forests and streams. Dr. Townsend's work emphasizes linkages between ecosystem function (nitrogen and carbon cycling), plant community dynamics, watershed hydrology and landscape ecology. A central component of his work is the development of remote sensing applications both to assess the impacts of disturbances and environmental changes and to predict likely effects of future changes. Dr. Townsend's current major research projects involve studies of: (1) past and current mining and reclamation in the Central Appalachians and associated hydrological changes, (2) ecosystem dynamics (nitrogen and carbon cycling) and ecohydrological impacts associated with insect disturbances in the Appalachians and Upper Midwest, (3) examination of relationships between sedimentation and changes in flooding on ecological processes on floodplains, and (4) predictive modeling of ecological distributions and responses to environmental change. Trained as an ecologist and geographer at the post-graduate level, Dr. Townsend also draws upon an undergraduate degree in history to provide context for his contemporary ecological studies. Some of the most exciting aspects of his research involve understanding how the context of past disturbances and environmental changes influence current responses of forests and watershed systems to new perturbations. Dr. Townsend's activities have included the development of management tools for resource managers and conservation organizations to coordinate adaptive management of large ecosystems. In addition, his work has involved extensive public outreach including teacher training and the development of two documentary DVDs.

Unrine, Jason M.

University of Kentucky

Dr. Jason Unrine is Assistant Research Professor in the Environmental Toxicology and Chemistry Laboratory within the Department of Plant and Soil Sciences at the University of Kentucky. He holds a B.S. in Biology from Antioch College, and a Ph.D. in Toxicology from the University of Georgia. Dr. Unrine's research focuses on the bioavailability and effects of trace elements and manufactured nanomaterials, with an emphasis on biological and environmental analytical chemistry. He has conducted extensive research on the bioavailability and chemical speciation of trace-elements having authored ~25 peer reviewed journal articles, reports and book chapters on the subject. Dr. Unrine's work has focused on relating chemical speciation of trace elements to their maternal and trophic transfer, as well as resulting adverse effects, in wildlife in aquatic and terrestrial ecosystems. Much of this research has focused on mercury and selenium. Dr. Unrine is an expert in the development and application of novel analytical techniques for determining the chemical speciation and spatial distribution of trace elements in environmental and biological samples.

Warner, Richard

University of Kentucky

Dr. Warner is a Professor in Biosystems and Agricultural Engineering at the University of Kentucky. He holds a B.S. in Water and Air Resources Engineering from the University of Illinois (Chicago), an M.S. in Water Resources Engineering from Clemson University and a Ph.D. in Environmental Systems Engineering from Clemson University. Dr. Warner conducts applied research on alternative surface mine designs and operations that can affect stormwater, sediment and water chemistry impacts on streams and biota. Alternative mine designs (mining engineering) enable reducing the quantity (and particle size) of sediment and water quality constituents introduced to the ecosystem thereby reducing potential impacts. He integrates sediment concentration, duration and frequency risk assessments with aquatic biologists in developing a regulatory framework that is impact-based. Similarly, Dr. Warner integrates stormwater measures with mining activities (active and reclamation) which enables development of ecosystem-based flow regimes. He has implemented a holistic approach to mine land reclamation emphasizing re-establishment of hardwood forest, through the Forest Reclamation Approach, and creation of streams on valley fills. Dr. Warner managed extensive GIS analysis of surface and reclaimed mined lands in Kentucky which quantified extent of area impacts, and assessment of probable hydrologic impacts and ephemeral, intermittent and perennial stream-miles impacted on a HUC-8 to HUC-14 watershed basis. He developed and taught over 100 technology transfer courses in hydrology, erosion and sediment control, and reclamation of mined lands to regulatory personnel, consultants and industry. Dr. Warner co-authored SEDCAD which is a computer model used throughout the U.S. and internationally to design and evaluate hydrologic, sedimentologic and environmental control systems for coal and hard rock mining. He has conducted research, technology transfer and policy formulation and assessment for the U.S. Office of Surface Mining. Dr. Warner has served as a senior advisor and consultant to major U.S. and international mining companies.

Watzlaf, George

Hedin Environmental

Mr. Watzlaf is an Environmental Engineer with Hedin Environmental, Inc, a Consulting Engineering firm in Pittsburgh PA. He was formerly an Environmental Engineer with U.S. Department of Energy and U.S. Bureau of Mines. Mr. Watzlaf holds a B.S. in Secondary Education, certified in Physics, a B.S. in Mining Engineering and an M.S. in Environmental Engineering from the University of Pittsburgh. He has worked on issues dealing with the environmental effects of mining, and has published over 50 papers in this field. Most of this work has focused on the formation, control, and treatment of acid mine drainage. Mr. Watzlaf has worked extensively of the development of criteria used to select and size passive systems for the treatment of mine drainage.

Welsch, Daniel L.

Canaan Valley Institute

Dr. Welsch is a Research Environmental Scientist and Manager of the Research and Development Program at the Canaan Valley Institute in Davis, WV. He holds an adjunct faculty appointment in the Division of Forest Resources at West Virginia University. Dr. Welsch holds a B.S. in Environmental Analysis and Planning from Frostburg State University, an M.S. in Environmental Engineering from the State University of New York College of Environmental Science and Forestry, and a Ph.D. in Environmental Sciences with an emphasis on Hydrology and Biogeochemistry from the University of Virginia. His research explores hydrological and biogeochemical processes along the interface between environmental systems. In particular, Dr. Welsch is interested in exchanges of water, energy, and nutrients between streams and their banks, and fluxes of carbon between soils, plants, and the atmosphere.

Westall, John C.

Independent Consultant

Dr. Westall is Professor Emeritus from the Department of Chemistry of Oregon State University in Corvallis, OR. He holds a B.S. from the University of North Carolina at Chapel Hill and a Ph.D. from the Massachusetts Institute of Technology. Dr. Westall's research is focused on the application of surface and solution chemistry to problems in environmental chemistry, electrochemistry, and analytical chemistry. Dr. Westall's recent research topics include: (i) interactions of metal ions with heterogeneous environmental complexants, such as humic substances and surfaces of soil particles, and development of models for these complex interactions; (ii) electrochemical processes in the environment, including corrosion and redox transformations of inorganic and organic pollutants; (iii) the processes that control the distribution of hydrophobic, ionogenic, and ionic organic compounds between water and environmental sorbents; (iv) electric double layer phenomena associated with environmental surfaces; (v) mathematical methods for the determination of equilibrium constants from experimental data; and (vi) the application of multicomponent chemical equilibrium models to biogeochemical problems.

Whiles, Matt R.

Southern Illinois University

Dr. Matt Whiles is Professor of Zoology and Director of the Middle Mississippi Wetlands Field Station at Southern Illinois University. He holds a B.S. in Biology from Kansas State University and an M.S in Entomology and Ph.D. in Ecology from the University of Georgia. Dr. Whiles' research focuses on examining the roles of consumer groups, particularly invertebrates and amphibians, in freshwater ecosystem functioning. He is also interested in the effects of disturbance on aquatic invertebrate communities and ecosystems, as well as the role of invertebrates and other consumer groups in recovery of ecosystem processes following disturbance. Dr. Whiles' current and recent projects include investigating the influences of hydrologic fluctuations and river water level management on floodplain communities, quantifying the ecological consequences of stream-dwelling amphibian extirpations in the Central American highlands, and assessing the influences of land management practices on grassland headwater streams.

Whiting, Peter John

Case Western Reserve University

Dr. Peter Whiting is Associate Dean of the College of Arts and Sciences and Associate Professor of Geological Sciences at Case Western Reserve University (CWRU). He directs the Seminar Approach to General Education and Scholarship – a five course sequence taken by each undergraduate at CWRU. Dr. Whiting holds a B.A. in Geology from Carleton College in Northfield, MN, and a Ph.D. in Geomorphology from University of California, Berkeley. Prior to joining the faculty at CWRU, he worked as an environmental consultant in the Northwest. Dr. Whiting's primary research interest is rivers and streams. His goal is to answer theoretical questions about process and morphology and to address practical problems of environment and landuse using quantitative field study and physical or computational modeling. Dr. Whiting has developed techniques for determining the source, transport and fate of fine sediment and adsorbed pollutants using fallout radionuclides as tracers. He has undertaken an extensive field effort to understand the river flows that move the bulk of the sediment in streams. One aim of this work is to develop a protocol for estimating the streamflow necessary to prevent sediment from filling channels in support of a major water rights case in Idaho. In addition, Dr. Whiting has investigated the ability of the floodplain to store and release water as influenced by floodplain material (gravel, sand or silt) and width. Other topics he has examined are: stream classification, river meander development, estimation of channel attributes using Geographic Information Systems, and estimation of background sediment loading in Total Maximum Daily Load determinations.

Wieder, Kelman

Villanova University

Dr. R. Kelman Wieder is Professor of Biology in the Department of Biology, and Associate Dean for Sciences, at Villanova University. He holds a B.A. in Biology from Amherst College, an M.A. in Biological Sciences from University of Missouri at Columbia, and a Ph.D. in Biology from West Virginia University. Dr. Wieder has been on the Biology faculty at Villanova University since 1984, and continues his research with students and collaborators while serving as the Associate Dean for Sciences at Villanova University. He is an ecosystem ecologist and biogeochemist. Dr. Wieder's research has examined tallgrass prairies and unreclaimed coal surface mines in Missouri, tropical forests on Barro Colorado Island, Panama, wetland treatment of acid mine drainage, peat bog records of atmospheric pollution in Europe, and the ecology of Appalachian headwater wetlands and streams. His recent research has focused on boreal peatlands of continental western Canada, including the effects of fire and permafrost thaw on the structure and function of these ecosystems, with implications for regional and global carbon cycling and climate change. Dr. Wieder's current research examines the ecological ramifications of oil sands mining and development on Alberta peatlands and on the reclamation of decommissioned oil pads and roads initially constructed in peatlands in Alberta. His research has been funded by the U.S. Environmental Protection Agency, the National Science Foundation, the Smithsonian Tropical Research Institute, The Chesapeake Research Consortium, the U.S. Office of Surface Mining, Reclamation and Enforcement, SURE Northern Energy, Shell Oil, the Cumulative Environmental Management Agency (Alberta), and the Wood Buffalo Environmental Association (Alberta). Dr. Wieder has coauthored over 100 papers and over 150 presentations at scientific and professional conferences. He has served as a Technical Advisor to the U.S. Office of Surface Mining, Reclamation and Enforcement (1987-1988), as a Panel Manager for the U.S. Department of Agriculture (USDA) National Research Initiative Competitive Grants Program (Forest/Range/Crop/Aquatic Ecosystems program, 1996-1997), as a Program Director for the USDA's National Research Initiative Competitive Grants Program (the Soils and Soil Biology and the Water Resources Assessment and Protection Programs, 1998), and as a Program Officer at the National Science Foundation (Ecosystem Studies Program, 2003-2005). Dr. Wieder served as the Arms-length Scientist on Board of Directors and Chair of the Science Advisory Panel for FLUXNET-Canada (2002-2007). He currently serves on the Editorial Board of the journal Biogeochemistry. Dr. Wieder is a life member and Fellow of the Society of Wetland Scientists.

Wirts, John

West Virginia Department of Environmental Protection

Mr. John Wirts is the Environmental Resources Program Manager for the West Virginia Department of Environmental Protection's (WVDEP) Watershed Assessment Section. He holds a B.S. in Zoology with a minor in Chemistry, and an M.S. in Biological Sciences with concentration in Aquatic Biology from Marshall University in Huntington, WV. At WVDEP, Mr. Wirts manages both technical and professional support staff in planning, organizing, and implementing the statewide water quality monitoring efforts of the WVDEP and assists in the development of West Virginia Integrated Reports (i.e. Clean Water Act Section 303(d) and 305(b) lists). He also coordinates the efforts of the Watershed Assessment Program to support both water and mine permitting, enforcement, and water quality criteria development needs, as well as coordinates the efforts in support of other agencies (i.e. U.S. Geological Survey, U.S. Environmental Protection Agency, West Virginia Division of Natural Resources, West Virginia Department of Health & Human Resources, and others). Mr. Wirts has devoted his career to stream assessment, beginning as an aquatic biologist for several EPA contractors, where he worked as both a benthic macro-invertebrate and fish taxonomist and a toxicity testing laboratory technician, and culminating in his work for WVDEP. While at WVDEP, he has served on the following committees: Mountaintop Mining/Valley Environmental Impact Statement Aquatic Life Studies; Selenium Water Quality and Bioaccumulation Studies; Mercury Fish Tissue Studies; Nutrient Criteria Committee; Chesapeake Bay Non-Tidal Monitoring Committee; the Ohio River Valley Water Sanitation Commission (ORSANCO) Biological Water Quality Committee; ORSANCO Monitoring Committee; West Virginia Fish Consumption Advisory Committee; and Potomac Fish Health investigations.

Yeager, Jessica L.

Potesta & Associates, Inc.

Ms. Jessica L. Yeager is a Senior Scientist at Potesta & Associates, Inc. in Charleston, West Virginia where she works in the Environmental/Permit Compliance group. She holds a B.S. in Biology with a minor in Chemistry from Fairmont State College, an M.S. in Biology with a concentration in aquatic ecology and toxicology from Virginia Polytechnic Institute and State University, and is currently working on an M.S. in Environmental Science at Marshall University. Ms. Yeager has extensive experience in evaluating the effects of anthropogenic activities on aquatic biology. She has worked primarily on issues associated with federal permitting and work on projects that must comply with Sections 404/401 of the Clean Water Act, the National Environmental Policy Act (NEPA), and the Endangered Species Act (ESA). Ms. Yeager's work has included Environmental Assessments (EA) for both private and public entities, Biological Assessments, and various other types of biological surveys in multiple watersheds throughout West Virginia, Kentucky, and Virginia. She specializes in development of baseline, recovery and restoration plans and environmental risk assessment, evaluation of toxicity data, conducting habitat assessments and complex biological surveys including functional assessments, conducting bio-monitoring and bioaccumulation studies, and National Pollutant Discharge and Elimination System (NPDES) permit development. Ms. Yeager has prepared numerous environmental information documents for large surface disturbances, compensatory mitigation plans, and other environmental studies. She has been involved in several projects in which biological surveys have been conducted in response to a release to surface waters. Ms. Yeager's larger projects include work on the Lone Mountain Slurry Spill into the North Fork of the Powell River and the Martin County Coal Impoundment Release. Her other specialties include developing impact assessments for planned disturbances and accidental releases, establishing and implementing recovery plans for streams and rivers impacted by mining, supervising the field personnel conducting impact assessments, designing benthic macroinvertebrate and fish studies for permitting needs, and advising clients on issues pertaining to the implementation of West Virginia's environmental policies.

Ziemkiewicz, Paul F.

West Virginia University

Dr. Paul Ziemkiewicz is Director of the West Virginia Water Research Institute and Director of the National Mine Land Reclamation Center at West Virginia University in Morgantown, WV. He holds a B.S. in Biology from Utah State University, an M.S. in Range Ecology from Utah State University, and a Ph.D. in Forest Ecology from the University of British Columbia. Since 1978, Dr. Ziemkiewicz has been responsible for developing and managing environmental research programs related to the needs of the regulatory agencies and the energy industry: specifically, coal, power generation, oil and gas and oil sands. His current research focuses on mine drainage, water management in the power industry, watershed protection and restoration and brownfields development of mined land. Dr. Ziemkiewicz's research program is supported by the U.S. Department of Energy, U.S. Environmental Protection Agency, U.S. Geological Survey, U.S. Department of Labor, U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement, Natural Resources Conservation Service, West Virginia Department of Environmental Protection, as well as the coal, petroleum and power industries. In addition to his research roles, he has served in a regulatory capacity with government agencies and developed regulatory and research and development policy. Dr. Ziemkiewicz currently serves on both state and federal policy advisory committees focusing on mine reclamation, watershed restoration and mine drainage. He work closely with watershed organizations, the environmental community, state and Federal agencies and the energy industry to find solutions to energy and environmental problems.