QUANTUS, LLC

CHARLES E. COMISKEY

304 Irwin Rd., Powell, TN 37849

(865) 947-5111 **charlescomiskey@comcast.net**

EDUCATION

Ph.D., Ecology, University of Tennessee
M.S., Statistics, University of Tennessee
M.S., Zoology, University of Tennessee
B.S., Biology, Seton Hall University

QUALIFICATIONS AND RELEVANT EXPERIENCE

Dr. Comiskey is a Senior Environmental Scientist with several decades of experience managing and implementing applied multidisciplinary research, assessment, and permitting projects. He has an in-depth understanding of the regulatory requirements of NEPA, Clean Water Act (CWA), Endangered Species Act (ESA), CERCLA, RCRA and related state legislation, and has interacted extensively with the U.S. EPA, U.S. Army Corps Engineers, U.S. Fish and Wildlife Service, state water quality and wildlife conservation agencies, and SHPOs. Dr. Comiskey's relevant technical areas of expertise include environmental decision-making, multimedia contaminant monitoring/sampling design, ecological resource survey design, transport and fate modeling, human health and ecological risk assessment, database management, statistical analysis of historical and project-generated data, GIS applications, QA/QC of environmental measurement processes and data operations, and technical document review. He is proficient using SAS and other statistical packages. He has applied quantitative methodologies in terrestrial, freshwater, marine, and human environments in the U.S. and abroad to address such diverse issues as: linear corridor construction; uncontrolled release and management of hazardous wastes; power plant-related air and water effluent discharges; dredged material and sewage disposal; surface water withdrawal and thermal discharge; fossil fuel exploration, production and use; large river impoundment; wind farm development; and military operations. Dr. Comiskey has participated in all aspects of the FERC 7(C) process. He is co-developer of the environmental linebook development methodology for linear corridor projects and has applied and refined the methodology in several recent interstate gas pipeline projects.

WORK HISTORY

Quantus, LLC, Powell, TN. January 2006 - present. Chief Executive Officer. As Senior Environmental Scientist, Dr. Comiskey is providing technical and quality assurance support to commercial, government, and academic clients in the areas of linear corridor development, brownfield assessment, technical document review, and QA/QC of environmental measurement processes, with emphasis on decision making applications under NEPA, CWA, and ESA. Over the past nine years, he has provided NEPA, FERC 7(C) and related permitting support to numerous natural gas pipeline companies, including Spectra Energy Transmission, LLC (Copiah Storage Project, Cedar Bayou Lateral Project, and Time II Project), Southeast Supply Header, LLC, Steckman Ridge, LP, Transwestern Pipeline Co., LLC, ETC Tiger Pipeline, LLC, and the Pacific Connector Gas Pipeline, LP. In conducting this work, Dr. Comiskey was involved in all aspects of the FERC 7(C) process, with emphasis on providing direct technical and quality assurance support to client project and technical managers. These efforts emphasized the following: quality assurance review of resource reports developed under FERC's pre-filing process; writing various sections of NEPA documents, responding to FERC information requests; implementation plan development; development of environmental linebooks for use by construction personnel in complying with environmental conditions and requirements; addressing ongoing permitting and related issues during construction (e.g., hydrostatic testing and unanticipated discovery of potential contaminated media); identification and specification of environmental conditions in easements and condemnation documents in support of right-of-way activities; and post-construction restoration monitoring planning, design, implementation, data analysis and reporting.

BHE Environmental, Inc., Pleasanton, CA and Knoxville, TN. June 1999 - January 2006. Technical Director. Dr. Comiskey applied his expertise company-wide to address key technical issues and ensure quality products. He was Project Manager and Technical Coordinator on multiyear permitting efforts for Level (3) Communications and PF.Net/AT&T (NexGen) fiber optic network construction. For Level (3), he coordinated the efforts of several contractors to address the spectrum of environmental issues associated with regeneration station construction, while on the NexGen New York to Florida segment, Dr. Comiskey authored numerous compliance and permitting documents related to both running line and regeneration station construction. He was Technical Coordinator with the Ohio EPA Voluntary Action Program, providing sampling design, transport and fate modeling, human health and ecological risk assessment, and statistical analysis support to brownfield reuse projects state-wide. For several years, he managed, analyzed, and reported on water quality, diatom, macroinvertebrate, fish soil quality, soil foodweb, and terrestrial insect data from the Biomonitoring Program for ESA Compliance at Fort Leonard Wood (FLW), Missouri for the Kansas City District (KCD) of the U.S. Army Corps of Engineers (USACE). Dr. Comiskey was also Project Manager and Principal Author of an Environmental Assessment of the Olmsted Locks and Dam Project on the Lower Ohio River for the USACE, Louisville District. He conducted DQO-based data quality evaluations at five Installation Restoration Program (IRP) sites at FLW for KCD USACE. This project involved development, analysis, and display of an integrated, multimedia data base of chemical concentrations and related parameters, formulation of conceptual site models, statistical testing of hypotheses, identification of ecological and human health risks, and specification of data gaps precluding completion of remedial investigations. Dr. Comiskey applied EPA Rapid Bioassessment Protocol methods to assess water quality impacts to fish, macroinvertebrate, diatom, and vegetation communities in several states. He identified bat species at several military installations using discriminant function analysis of echolocation call data generated by the Anabat ultrasonic detector/analysis system, and provided consulting services for design of bat mortality studies at several wind farm project sites in the Eastern and Midwest U.S.

Quantus, LLC, Powell, TN. October 1996 - June 1999. Chief Executive Officer. Dr. Comiskey directed the activities of this small, woman-owned business and provided technical expertise to academic, government, and commercial organizations. Projects ranged from development of vegetation and hydrologic map layers for 80 vegetation alliances defined by The Nature Conservancy's terrestrial vegetation classification system in support of the University of Tennessee Institute for Environmental Modeling's Across-Trophic-Level System Simulation (ATLSS) project in the Florida Everglades to statistical consulting services to the DOE FUSRAP and Navy AFCEE remediation programs for Bechtel Environmental Inc.

Apex Environmental Inc., Oak Ridge, TN. September 1994 - October 1996. Senior Scientist. Dr. Comiskey was primarily involved in application of quantitative methodologies to addressing the needs of remedial, D&D, and waste management decision making. Representative projects include: (1) D&D sampling design and criterion development support to the Westinghouse Savannah River Co. Waste Characterization Board at DOE's Savannah River Site; (2) statistical analysis of headspace gas and vapor data for classification of 47 high level waste tanks for the Westinghouse Hanford Co. (WHC) Tank Waste Remediation System Characterization Program and DOE's Office of Environmental Restoration (OER); (3) sampling design and analysis support for confirmation of cleanup of PCB contamination at the Eshkol Power Station for the Israel Electric Corp.; and, (4) development of DQO-based strategies for industrial hygiene exposure assessment at the Hanford Tank Farms for WHC and DOE OER.

Integrated Computer Systems (ICS), Oak Ridge, TN. October 1990 - May 1994. Manager, Environmental Systems Division. Dr. Comiskey built a multidisciplinary team of scientists, engineers and regulatory compliance specialists with state-of-the-art expertise in integrated assessment of environmental restoration and waste management (ERWM) activities at Federal facilities. As Program Manager for ICS support to DOE's OER, he provided technical and regulatory expertise for integrated RCRA/CERCLA/NEPA assessment at approximately 20 DOE facilities. Dr. Comiskey's support to DOE centered on the following areas: (1) technical/regulatory review of ERWM programs and a wide spectrum of related documents; (2) participation in DOE-sponsored interagency technical working groups; (3) consultation with DOE and DOE contractors on improving ERWM efforts; (4) training in the application of state-of-the-art methodologies for ERWM streamlining; and, (5) researching "cutting edge" issues with DOE-wide relevance and applicability. Dr. Comiskey was lead reviewer on over 100 baseline characterization and ecological/human health risk assessment

plans and reports. These quantitatively-based review efforts were directed toward assessing the adequacy of ERWM programs and documentation to support remedial decision making. In successfully implementing these efforts, Dr. Comiskey interacted extensively with staff of DOE headquarters, various DOE Operations Offices, DOE's M&O and ERWM contractors, Federal and State regulatory agencies, and other stakeholders.

Oak Ridge Associated Universities, Oak Ridge, TN. October 1990 - December 1990. Consultant. Dr. Comiskey provided statistical support to the Energy/Environment Systems Division's Environmental Survey and Site Assessment Program for the NRC's Office of Nuclear Regulatory Research in development of NUREG/CR 5849, *Manual for Conducting Radiological Surveys in Support of License Termination*.

Science Applications International Corporation, Oak Ridge, TN. June 1976 - October 1990. Chief Scientist, Environmental, Safety and Health Engineering and Sciences Division (ESHESD). In his capacity as Chief Scientist, Dr. Comiskey's duties included technical quality assurance of contract deliverables produced by the >100-person division. Previously, as Manager of the Quantitative Environmental Analysis Section of the Environmental Sciences Division he directed staff activities in the areas of multimedia monitoring and sampling design, ecological modeling, risk assessment, NEPA impact assessment, and database development, and statistical analysis. He was program manager, project manager, or principal investigator on dozens of multidisciplinary assessment efforts which addressed a wide spectrum of technical issues, from coordination of the technical planning for the East Fork Poplar Creek RFI/RI/EIS for DOE Oak Ridge Operations (ORO) to design and implementation of multidisciplinary monitoring programs in coastal environments and management, analysis, and reporting of data from these programs. Dr. Comiskey's other NEPA-related efforts include support to DOE's Strategic Petroleum Reserve Office, DOE's Economic Regulatory Administration, E. I. du Pont and WSRC NEPA Affairs Groups, Savannah River Technology Center, US Air Force Tactical Air Command, EPA's Office of Water Regulations and Standards, and USACE Mobile and New England Districts. These efforts included testifying at public hearings in support of major federal actions. Dr. Comiskey led the design and implementation of monitoring programs for quantitative characterization of, and impacts to biotic populations and communities, their habitats, and their relationship s to key environmental variables for numerous federal and state agencies. Representative projects include: (1) Biological Effects Studies under Municipality of Metropolitan Seattle's Toxicant Pretreatment Planning Study in Puget Sound; (2) the Disposal Area Monitoring System (DAMOS) Program for the New England District, USACE; (3) Benthic Macroinfaunal Community Characterization in Mississippi Sound and Adjacent Waters for the Mobile District, USACE; (4) Benthic Macroinfaunal Community Characterization under National Marine Fisheries Service (NMFS) Galveston Laboratory's Ecological Effects of Energy Development on Reef and Benthos Populations in the Flower Garden Banks of the Gulf of Mexico; (5) ecological modeling and analysis of groundfish and penaeid shrimp community dynamics in the Minerals Management Service (MMS) Gulf of Mexico Regional Office's Tuscaloosa Trend Data Search and Synthesis Study; and, (6) statistical analyses under Work Unit 2: Analysis of Data on Shrimping Success, Shrimp Recruitment and Associated Environmental Variables for the Texas Coast, and Work Unit 3: Texas Coast Shrimp Catch and Effort Analysis of NMFS Galveston Laboratory's Shrimp and Redfish Studies. He pioneered the application of multivariate techniques to analyzing biotic survey data, developed a community-based approach to environmental impact/risk assessment, and wrote manuals for conducting surveys for resource characterization and impact assessment.

ACADEMIC EXPERIENCE

Dr. Comiskey's Ph.D. research was conducted at Oak Ridge National Laboratory as part of the Eastern Deciduous Forest Biome component of the International Biological Programme. This work involved quantification of standing stocks and fluxes of organic carbon on Walker Branch Watershed, including inputs to and outputs from the forested ecosystem. The effort was based on the watershed approach to biogeochemical cycling and focused on the role of land-water interactions. Dr. Comiskey's M.S. Thesis in Zoology characterized the fishes of the Big South Fork of the Cumberland River system in Tennessee and Kentucky using a variety of sampling techniques. For his M.S. in Statistics, Dr. Comiskey developed an MMP model of the behavior of naturally-occurring trace constituents in groundwater for optimization of RCRA groundwater monitoring design. The model, which takes into account spatial and temporal effects, interactions, and covariance structure, was verified through Monte Carlo simulation.