

**JOHN D. SCHELL, PH.D.**  
**Corporate Director,**  
**Toxicology and Risk Assessment**

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**Fields of Specialization**

- ▶ Mechanistic Toxicology
- ▶ Human/ecological risk assessments of PCBs, dioxins, VOCs, pesticides, PAHs, metals

**Credentials/Registrations**

- ▶ Ph.D., Toxicology, University of Medicine and Dentistry of New Jersey, Rutgers University, 1987
- ▶ B.S., Zoology, University of South Florida, 1977

**Professional Affiliations**

- ▶ Society of Environmental Toxicology and Chemistry
- ▶ Society of Risk Analysis
- ▶ Society of Toxicology
- ▶ Society of Petroleum Engineers

**Academic Appointments**

- ▶ Assistant Professor, College of Public Health, University of South Florida, Tampa, FL. 1998–2002
- ▶ Assistant Professor, University of Florida, Center for Environmental and Human Toxicology, 1991–1997

**Advisory Appointments**

- ▶ U.S. EPA Pesticide Program Dialogue Committee, 2004–2010
- ▶ Lake Apopka Expert Review Panel (Chairman), 1996
- ▶ State of Florida Governor's Mercury Task Force, 1990–1992

**Peer Reviewer**

- ▶ Environmental Health Perspectives
- ▶ Human & Ecological Risk Assessment
- ▶ Toxicological Sciences

**Career Summary**

Dr. Schell has nearly 30 years of environmental assessment experience, focusing on human health and ecological impacts of PCBs, dioxins, volatile organics, chlorinated pesticides, and metals. He is a former member of the faculty at the University of Florida, and has held adjunct teaching positions at the University of South Florida and the University of Florida. Dr. Schell has experience performing human health and ecological risk assessments under state and federal programs such as Superfund, RCRA, and state Risk-Based Corrective Action (RBCA) programs. His broad experience includes assessing the toxicity of PCBs, dioxins, VOCs, pesticides, aromatic hydrocarbons, and metals, investigating their mode of action, and their impact on human health and the environment. His activities include work on some of the largest CERCLA sites in the U.S., and he has worked on projects in 27 states across the country. Dr. Schell has also participated in several projects for the oil and gas sector including air monitoring/modeling at an active facing site; health assessment at a process water reclamation facility; and developing a hazard ranking system for hydraulic fracturing fluids – conveying these findings in scientific publications and public meetings.

Dr. Schell has served on advisory bodies on chemical risk assessment issues in Florida and Michigan; has presented to international regulatory and scientific bodies and numerous public hearings; and, has provided congressional briefings in Washington D.C. Dr. Schell is a former member of the USEPA Pesticide Program Dialogue Committee, and he has been qualified as an expert in toxicology in both federal and state courts.

## Experience

- Corporate Director of Toxicology & Risk Assessment – TEA, Inc., 2015 – present
- Principal Scientist – Exponent, 2011-2015
- Principal and Technical Director – ENTRIX, Inc., 2007–2011
- Principal and Vice President – Blasland, Bouck & Lee, Inc./Arcadis Inc., 2000–2007
- Assistant Professor – College of Public Health, University of South Florida, 1998–2002
- Vice President and Director, Risk Assessment Group – TERRA, Inc./ATRA Occupational & Environmental Services, Inc., 1995–2000
- Toxicologist — TERRA, Inc., 1992–1995
- Staff Toxicologist — St. Johns River Water Management District, Environmental Scientist, 1989–1992
- Associate Scientist — University of Florida, Center for Environmental and Human Toxicology, 1991–1997
- Postdoctoral Research Associate — University of Florida, The Whitney Laboratory, 1987–1989
- Graduate Assistant — Rutgers University, Department of Toxicology, 1985–1987
- Teaching Assistant — Rutgers University, Department of Pharmacology, 1984–1985
- Research Specialist — Hospital of the University of Pennsylvania, Nephrology Department, 1977–1982

## Experience Summary

- Human Health and Ecological Risk Assessment in the Michigan Upper Peninsula. Evaluation of the reproductive and immunological hazards and cancer risks from consumption of fish from a PCB contaminated harbor. Determined risk to threatened and endanger species posed by sediment associated PCBs in the harbor. Developed alternative exposure scenarios which more accurately reflected community and wildlife characteristics. These alternatives were adopted by the U.S. EPA in developing the final remedy for the site.
- Developed Innovative Hazard Ranking System for Hydraulic Fracturing Fluids for Major Chemical Producer. Participated in team that developed an assessment protocol for evaluating the components of fracturing fluids based on their human and ecological toxicities and physical/chemical properties. The scoring system is consistent with the recent European Union’s (EU) new directive on Global Harmonization of Labeling. The system is being used by the client to optimize the environmental safety and performance of their fracturing fluid systems. \$1.5 million effort.
- Critiqued Methodology and Scientific Assumptions Used to Derive Dioxin TMDL. The USEPA had proposed establishing a TMDL for dioxin and dioxin-like compounds for a waterbody in Ohio and West Virginia. The TMDL was based on certain assumptions concerning the fate of dioxin in an aquatic system, bioaccumulation into aquatic organisms and exposure and toxicity to humans and wildlife of these compounds. These assumptions and models were evaluated, and alternative methodologies proposed for EPA’s reevaluation.

- Health Assessment and Corrective Measure Evaluation for PCBs in a Southeastern Watershed. Evaluated historical data, community blood surveys, and watershed characteristic data to determine the need for and the level of remedial activity related to PCB-associated sediments in a large river system in the Southeastern U.S.
- Developed and published Risk-Based Drinking Water Screening Concentrations for Tungsten using the Benchmark Dose modeling approach.
- Health Assessment of Potential Chemical Exposures at a Water Processing Plant. Evaluated water purification processes and environmental data to determine risks associated with potential exposure to chemicals in flowback and process water from hydraulic fracturing operations in the Bakken Shale Play.
- Assessment of Risks Associated with Air Emissions from Hydraulic Fracturing Facility in the Eagle Ford Shale Play. Assisted in the development of an air sampling program in response to a state Notice of Violation, and provided the confidential client with an assessment of risks to off-site human receptors from chemical constituents released during standard operations.
- Risk-Based Remedial Objectives for PCBs released Off-Site from a aluminum manufacturing facility. Developed RCRA Corrective Action risk-based PCB concentrations for soil and sediments based on site-specific conditions adopted by USEPA Region 5 for remediation of a discharge receiving stream.
- Used the Benchmark Dose modeling approach with data from studies conducted by the Department of Defense to derive preliminary risk-based screening concentrations in order to evaluate groundwater at one of a client's U.S. facilities. These results were presented to the local water commission as part of an outreach program.
- As part of the Everglades Restoration Program conducted multiple perspective ecological risk assessments of former agricultural lands prior to conversion of these "muck farms" back to the original habitat.
- Investigation into Environmental Conditions Associated with an Apparent "Cancer Cluster" in Children. Participated in the evaluation of environmental data and associated materials developed by the Centers for Disease Control (CDC) as part of an investigation into a so-called "cancer cluster" of acute lymphocytic leukemia in children living in a Nevada town. Participated in developing comments on the CDC reports and developing technical information material for the community.
- Presentation to the Senate Commission of the Deutsche Forschungsgemeinschaft. On behalf of the international Tungsten Industry Association, participated in an oral presentation to the Senate Commission of the Deutsche (DFG [German Research Foundation]) in an effort to prevent the Foundation from categorizing Hardmetal (cobalt with tungsten carbide) as a category 1, or known human carcinogen.
- Developed Alternative Lead Cleanup Levels for Railroad Refueling Sites. Provided alternative soil lead cleanup levels using modified biokinetic approaches and site-specific exposure scenarios to the State of Mississippi. The alternative approach and cleanup levels were reviewed and approved by the USEPA's Technical Advisory Workgroup for Lead.

- Developed Alternative Risk-Based Drinking Water Criteria for 1,4-Dioxane. Using EPA's recently adopted methodology for deriving the dose-response relationship for cancer (i.e., the benchmark dose methodology), used the available experimental animal data set to derive an alternative cancer slope factor for 1,4-dioxane. Assuming default exposure assumption for drinking water, developed an alternative risk-based value protective of this exposure pathway.
- Risk Assessment of Occupational Exposures at a Process Water Reclamation Facility. Evaluated air and water exposure data at a facility that processed flow back and process water generated in the Green River Formation. Developed exposure concentrations and risk evaluation for workers at the facility.
- Adopted the Risk-Based Corrective Action (RBCA) Model for Use in the Health and Environmental Assessment Portion of a RCRA Permit Application. Demonstrated to the State regulatory agency and USEPA that the methodology outlined in the RBCA guidance was consistent with the "action level" approach prescribed in the RCRA guidance. Employed this agency-approved methodology in the HEA section of the Part B permit application.
- Established Alternative PCB Cleanup Levels for an Active Jet Engine Manufacturing Facility. Using Monte Carlo analysis and consideration of site-specific conditions to define the exposure distributions, developed alternative human health and ecological target cleanup concentrations for PCBs in soil and groundwater.
- Developed Risk-Based Lead Clean-Up Levels, Saginaw Malleable Iron Plant, Michigan. As part of a RCRA Remedial Investigation in the state of Michigan, developed alternative lead cleanup levels based on site-specific modifications of USEPA's "Adult Lead Model" to account for unique exposure conditions to plant workers.
- Former Tungsten Processing Facility, Pennsylvania. As part of a Brownfield Initiative, a former tungsten processing facility was proposed for conversion to an interactive "industrial museum." Elevated levels of lead were on the property and the company requested that alternatives to the residential cleanup level of 400 ppm be developed. Modifications to the USEPA's IEUBK model resulted in proposed lead concentrations that required no further action.
- Determination of Potential Routes of Exposure and Associated Risks to PCBs. Developed the site conceptual model and delineated potential exposure routes to quantitatively evaluate associated cancer and non-cancer risks from PCB historically released to a waterway from a major production facility.
- Derived Risk-Based Remedial Goals for PCBs at a Chemical Production Facility. Following procedures outlined in the RBCA for Non-Petroleum Sites, developed site-specific, human and ecological risk-based levels of PCBs in soil protective of on-site worker population.
- Evaluation of Contribution of PCBs to Total Cancer Risks Associated with Ocean Sediments. Critiqued memorandum from USEPA which estimated PCBs bioaccumulated into fish were quantitatively more important than other bioaccumulated chlorinated compounds. Developed fate and transport estimates in sediments to use in estimating bioaccumulation of PCBs into resident fish populations.
- Qualitative Assessment of PCB Risks Associated with Releases from Gas Pipeline Pumping Stations. Proposed to the regulatory agencies that default assumptions required in standard quantitative risk assessments were irrelevant to these sites. Proposed evaluating each location on a site by site basis and developed qualitative estimates of risk to the local human and wildlife communities for each site. Procedure was accepted by federal and state regulatory communities.

- Developed Ecological Assessment of Risks from Future Use of an Abandoned Wood Treatment Facility on Mobile Bay. Provided estimates of cancer and non-cancer risks from chemicals found in soil, sediment and groundwater resulting from historical wood treatment activities. Use of alternative approaches, including the development of new toxicity values, led to changes in the proposed remedial strategy by the State of Alabama.
- Qualitative Assessment of the Human Health Implications of PCBs Found in a Small Intermittent Stream in New York. Evaluated the likely impact on the health of local residents of low levels of PCBs found in an intermittent stream which drains into Lake Erie. Proposed an alternative remedial strategy based on the demonstration of minor risks associated with the chemical constituents.
- Health Assessment of the Relative Quantitative Contribution of DDT and PCBs to Fish Consumers in California. Estimated the magnitude of PCBs and DDT in the total risk estimates to hypothetical populations of fish consumers. This assessment included unique characteristics and behavior patterns of a particularly sensitive target population.
- Potential of an Abandoned Lead Site to Impact the Lead Body Burden in Children from the Local Community. Quantitatively estimated the change in the total body burden of lead in children living near an abandoned lead paint facility located in an urban environment.
- Developed Appropriate Fish Tolerance Levels for Hexachlorobenzene and Hexachlorobutadiene. Developed risk based tolerance level for HCB and HCBd in fish tissue which represented safe exposure levels for recreational and commercial fishers.
- Assessment of Acute Toxicity of 2,4-D. Estimated probable doses to occupationally exposed individuals and evaluated the potential for acute toxic effects based on a review of the scientific literature.
- Health Assessment of 2,3,7,8-Tetrachlorodibenzo-p-dioxin in a Bleach Kraft Paper Mill. Determined the hypothetical risk of non-Hodgkin's lymphoma to individuals employed at a bleach kraft paper mill occupationally exposed to 2,3,7,8-TCDD.
- Assessment of the Reproductive and Developmental Toxicity of PCBs. Estimated the risks of neurological effects to children born of women who consume Great Lakes fish as a significant portion of their diet.
- As part of the Feasibility Study for remediation of a metal smelting site, developed PCB and TCDD ecological risk-based Remedial Goal Options for both terrestrial and aquatic systems.
- Toxicological Support for the Manganese Interest Group. On behalf of a consortium of auto and steel manufactures, developed the technical support document for the nomination of manganese for inclusion into EPA's IRIA 2007 agenda.
- Conducted Epidemiological Feasibility Study. For the International Tungsten Industry Association's (ITIA) Hardmetal Work Group, managed an investigation into the feasibility of conducting an epidemiological investigation of an international cohort of hardmetal workers. Conducted Congressional briefings regarding the ongoing research activity.
- Invited participant in USEPA Working Group on the development of the methodology for USEPA's guidance on Conducting Ecological Risk Assessments.
- Quantitative evaluation of potential impact of hydraulic fracturing on residential water supply. Expert witness in litigation of alleged contamination of a private drinking water well caused by the drilling of a well for hydraulic fracturing. Data from the private water supply were available prior



to and after the production of the well. These data were reviewed and a quantitative evaluation of the well was determined.

- Assess Exposure and Potential Developmental Effects from Lead Exposure, Pennsylvania. Technical support for defense expert witness in case of alleged injury to children from lead exposure in homes originating from a manufacturing facility. The body of scientific literature on the causal relationship between low level maternal body burdens of lead and neurodevelopmental effects in children exposed in utero were summarized to refute the alleged association.
- Hydraulic fracturing flow back and produce water treatment facility. Workers at a facility that purified waste water from hydraulic fracturing operations alleged injury from exposure to chemicals in the water. Evaluated air and water exposure data at a facility that processed flow back and process water generated in the Green River Formation. Developed exposure concentrations and risk evaluation for workers at the facility.

## Publications

Iannuzzi, TJ, Anthony, B, Fowler, AS, Iannuzzi, J, Pelletier, D, Loper, JL, Schell, JD. Assessing measurable adverse changes to benthic invertebrate communities based on site-specific sediment toxicity testing and community data at the Anniston, Alabama PCB site. *Human and Ecological Risk Assessment*. 2017. <http://dx.doi.org/10.1080/10807039.2017.1380513>

Carlson EA, Schell JD, Bodreddigari S, Sutter TR, Sutter CH. Species differences in PCB toxicodynamics and toxicokinetics relevant to the Aroclor 1254 reference dose. *Organohalogen Compounds* 2012; 74:1059-1062.

Ebert ES, Wilson N, Wacksman M, Loper JR, Schell JD, Fowler A. Utilization survey of a rural creek fishery in central Alabama. *Risk Anal*. 2011; 32(3):416-432.

Schell JD, Pardus MJ. Preliminary risk-based concentrations for tungsten in soil and drinking water. *Journal of Land Contamination* 2009; 17(1):179–188.

Wernke MJ, Schell JD. Solvents and malignancy. In: *Clinics in Occupational and Environmental Medicine*. Bennett-Bailey E (ed), Elsevier, Inc. Philadelphia, PA, 2004.

Schell JD, Budinsky RA, Wernke MJ. PCBs and neurodevelopmental effects in Michigan Children: An evaluation of exposure and dose characterization. *Regulatory Toxicology and Pharmacology* 2001; 33:300–312.

Budinsky RA, DeMott RP, Wernke MJ, Schell JD. An evaluation of modeled benzene exposure and dose-estimates published in the Chinese-National Cancer Institute collaborative epidemiological studies. *Regulatory Toxicology and Pharmacology* 1999; 30:244–258.

DeMott RP, Jones HD, Schell JD. Environmental risk assessment of a Lake Apopka muck farm wetlands restoration. *St. Johns River Water Management District Special Publication SJ98-SP7*, 1998.

James MO, Altman AH, Li J, Schell JD. Biotransformation, hepatopancreas DNA binding and pharmacokinetics of benzo(a)pyrene after oral and parenteral administration to the American lobster, *Homarus americanus*. *Chemico-biological Interactions* 1995; 82:456.

Keller AE, Schell JD. Lower St. Johns River Basin Reconnaissance: Sediment Characteristics and Quality. Volume 5. *St. Johns River Water Management District Technical Publication SJ93-6*, 1993.

- James RC, Busch H, Tamburro CH, Harbison RD, Schell JD, Roberts SM. Polychlorinated biphenyl exposure and human disease. *Journal of Occupational Medicine* 1993; 35(2):136–148.
- Schell JD, Campbell DM, Lowe E. Bioaccumulation of 2,3,7,8-tetrachlorodibenzo-p-dioxin in feral fish collected from a bleach-kraft paper mill receiving stream. *Environmental Toxicology and Chemistry* 1993; 12:2077–2082.
- James MO, Schell JD, Barron MG, Li J. Rapid, dose dependent elimination of phenol across the gills, and slow elimination of a novel conjugate of phenol in urine of phenol-dosed lobster, *Homarus americanus*. *Drug Metabolism and Disposition* 1991; 19:127–131.
- James MO, Schell JD, Boyle SM, Altman AH, Cromer EA. Southern flounder hepatic and intestinal metabolism and DNA binding of benzo(a)pyrene (BaP) metabolites following dietary administration of low doses of BaP, BaP-7,8-dihydrodiol or a BaP metabolite mixture. *Chemico-biological Interactions* 1991; 79:305–321.
- Schell JD, James MO. Glucose and sulfate conjugation of phenolic compounds by the spiny lobster (*Panulirus argus*). *Biochemistry and Toxicology* 1989; 4(2):133–138.
- James MO, Schell JD, Magee V. Bioavailability, biotransformation and elimination of benzo(a)pyrene and benzo(a)pyrene-7,8-dihydrodiol in the lobster, *Homarus americanus*. *Bulletin of the Mount Desert Island Biological Laboratory* 1988; 28:21–23.
- James MO, Barron MG, Schell JD. Conjugation and excretion of phenolic compounds by the lobster, *Homarus americanus*. *Bulletin of the Mount Desert Island Biological Laboratory* 1987; 27:9–11.
- Schell JD. Interactions of halogenated hydrocarbon mixtures in the embryo of the Japanese medaka (*Oryzias latipes*). Ph.D. Thesis, Rutgers University, 1987.
- Schell JD, Cooper KR. Microsomal mixed function oxidase activity in the Japanese medaka (*Oryzias latipes*). *Environmental Toxicology and Chemistry* 1987; 6:717–721.

## Scientific Presentations

- Schell, JD, Fowler, A, Loper, J, Loper, T. Applying an Evidence-Based Toxicology Approach to an Aquatic PCB Site: Is this Aquatic Ecosystem Really Sick? *Battelle Sediment Conference*, New Orleans LA, January 12, 2017.
- Schell, JD and Kierski, M. Key Risk Assessment Concepts and Approaches. *Society of Petroleum Engineers Chemical Risk Workshop*. San Antonio, TX. February 24, 2015.
- Schell, JD. Risk Assessment in the Regulation of Hydraulic Fracturing. Invited Speaker. *American Chemical Society. Spring Meeting*. Dallas, TX. March, 2014.
- Schell, JD, Loper, JR, Fowler, AS, Ziccardi, L. Assessing TEQ Ecological Risks at PCB Sites – Who Needs Them? *Society of Toxicology and Chemistry*. Vancouver, Canada. November 2014.
- Hilbert, LB, Schell, JD, and Meyer, AA. Considerations of Risk in Hydraulic Fracturing. *ASME Silicon Valley Section Technical Dinner Talk*. Invited Speaker. February 27, 2014.
- Schell, JD. Health Assessment of Hydraulic Fracturing. *Bloomberg-BNA Hot Topics in Fracking Litigation Webinar*. May, 2013.
- Carlson EA, Schell JD, Bodreddigari S, Sutter TR, Sutter CH. Species differences in PCB toxicodynamics and toxicokinetics relevant to the Aroclor 1254 reference dose. *Dioxin 2012*, Cairns, Australia, August 2012.

- Schell JD. Health Risks from Fracturing Fluids: Are They Real? Invited Speaker, Engineering and Technology Developments in Hydraulic Fracturing. Denver CO, July, 2012
- Schell JD, Carlson EA, Silkworth JB, Bodreddigari S, Sutter TR, Sutter CH. The Aroclor 1254 reference dose as a case study for the Development of Data-Derived Extrapolation Factors to replace the interspecies uncertainty factor. Society of Toxicology, March 2012.
- Ebert ES, Wilson N, Wacksman M, Fowler A, Schell J, Loper J. Results of a one-year fish consumption survey in Alabama. Society of Toxicology, March, 2011.
- Schell JD. Nanotoxicology: Is there a there, there? Annual International Conference on Soils, Sediments, Water and Energy, University of Massachusetts at Amherst, 2010.
- Keenan RE, Gwinn PO, Schell JD, Carlson EA, Silkworth JB. Application of nonlinear dose-response methods based on mode of action for polychlorinated biphenyls (PCBs). Society of Toxicology, Baltimore MD, 2009.
- Schell JD. Tungsten risk-based screening values: A preliminary assessment and benchmarking. Association for Environmental Health Sciences, San Diego, CA, March 2009.
- Keenan RE, Gwinn PO, Schell JD, Carlson EA, Silkworth JB. Cancer risk estimates for PCBs are reduced using nonlinear dose-response methods based on mode of action. Dioxin 2008, Birmingham England, 2008.
- Schell JD. Preliminary assessment of tungsten risk-based screening values and toxicity benchmarking. Force Health Protection Conference, Louisville, KY, August 9, 2007.
- Schell JD, Giolando ST, Pardus MJ. Tungsten carbide/cobalt hardmetal powder: Are they carcinogenic? Air & Waste Management Association Annual Meeting, New Orleans, LA, June 23, 2006.
- DeMott RP, Jones HD, Schell JD. Prospective ecological risk assessment for risk/benefit and risk management of proposed wetlands restoration. Society of Environmental Toxicology and Chemistry Annual Meeting, November 1998.
- James RC, Schell JD, Roberts SM, Price B, Freeman RW. Using human data to develop better cancer slope factors: PCBs as an example. Abstract for Society of Toxicology, March 1995.
- Schell JD, Borgert CJ, James RC, Freeman RW, Williams CA. The contribution of soil half-life to risk assessment conservatism. Abstract for Society of Toxicology, March 1995.
- Schell JD, Williams CA, Jones HD. Impact of site-specific data on PCB-related risk estimates using Monte Carlo analysis. Abstract for Society of Risk Analysis, December 1994.
- Schell JD, Jones HD, Williams CA. Effect of spatial considerations on PCB cancer risk using sediment accumulation models. Abstract for Society of Environmental Toxicology and Chemistry, November 1994.
- Glooschenko V, Brim M, Augspurger T, Schell J. Monitoring needs in the U.S. Southeast: Impact of dioxin and other industrial wastes on wildlife. Abstract for Society of Environmental Toxicology and Chemistry, November 1994.
- Schell JD, Campbell DM, Brody R. Bioaccumulation of environmental contaminants in feral fish populations of the St. Johns River, Florida. Society of Environmental Toxicology and Chemistry, November 1991.
- Schell JD, Cromer EA, James MO. Benzo(a)pyrene (BaP) DNA-adducts in southern flounder (*Paralichthys lethostigma*) fed contaminated shellfish. *The Toxicologist* 1989; 9:165.



- James MO, Schell JD. Bioavailability and biotransformation of benzo(a)pyrene (BaP) and BaP-7,8-dihydrodiol (BaP-7,8-D) in the lobster, *Homarus americanus*. *The Toxicologist* 1989; 9:164.
- James MO, Li J, Schell JD. Disposition of a sulfadimethoxine/ormetoprim combination in the lobster, *Homarus americanus*. *The FASEB Journal* 1989; 3(3):3844.
- Schell JD, James MO. In vitro glucose and sulfate conjugation of 4-methyl umbelliferone (4-MeU) by the spiny lobster (*Panulirus argus*). *The Toxicologist* 1988; 8:220.
- Schell JD, Cooper KR. Role of metabolism in the toxicity of carbon tetrachloride in the Japanese medaka (*Oryzias latipes*) embryo. *The Toxicologist* 1987; 7.
- Schell JD, Cooper KR. Induction of the xenobiotic metabolizing system of the Japanese medaka (*Oryzias latipes*). Society of Environmental Toxicology and Chemistry, Washington D.C., November 1986.
- Schell JD, Cooper KR. Chemical interactions of halogenated hydrocarbon mixtures on lethal and sublethal parameters in the Japanese medaka (*Oryzias latipes*). *The Toxicologist* 1986; 6(1):107.
- Cooper KR, Schell JD, Kahn P, Gallo M. The effects of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) on the development and survival of the Japanese medaka (*Oryzias latipes*). *The Toxicologist* 1986; 6(1):108.
- Schell JD, Cooper KR. Chemical interactions-halogenated hydrocarbon toxicity in the embryo of the Japanese medaka (*Oryzias latipes*). Society of Environmental Toxicology and Chemistry, St. Louis, MO, November 1985.
- Cooper KR, Schell JD, Umbreit T, Gallo M. Bioavailability of sediment bound dioxin as detected by the Japanese medaka (*Oryzias latipes*) embryo bioassay. Society of Environmental Toxicology and Chemistry, St. Louis, MO, November 1985.
- Schell JD, Cooper KR. The effects of carbon tetrachloride (CCl<sub>4</sub>), chloroform (CHCl<sub>3</sub>), trichloroethylene (TCE), and tetrachloroethylene (PCE) on the developing embryo of *Oryzias latipes*. SETAC Hudson/Delaware Chapter; New Brunswick, NJ, April 1985.
- Schell JD, Cooper KR. Alterations in <sup>59</sup>Fe distribution in rainbow trout following toluene and benzene exposure. *The Toxicologist* 1985; 5(1):90.