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# Jane Staveley, M.S.P.H.

Senior Managing Scientist | Ecological and Biological Sciences
Alexandria
jstaveley@exponent.com


## Professional Profile

Ms. Staveley has more than 40 years of experience in environmental toxicology, ecological risk assessment, and product stewardship, working with clients in both the public and private sector on a broad variety of environmental issues. She has extensive experience in ecotoxicology testing and risk assessment for pesticides, industrial chemicals, and pharmaceuticals, and is well versed in testing guidelines and risk assessment approaches developed under a variety of worldwide regulatory programs.

For veterinary and human pharmaceutical companies, Ms. Staveley has prepared environmental assessments to meet regulatory requirements in the U.S. and Europe. For agricultural chemical companies, she has conducted data gap analyses, monitored ecotoxicology studies and conducted ecological risk assessments. Her expertise includes pollinator risk assessment and endocrine disruptor evaluation.

Ms. Staveley advises a team of scientists that conduct environmental assessments for veterinary and human pharmaceuticals, ranging from justifications for categorical exclusions to complex watershed-level assessments. She has monitored ecotoxicology testing programs, prepared Data Evaluation Reports, and prepared successful waivers from testing for various clients pursuant to pesticide registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). She has evaluated ecotoxicology tests and prepared weight-of-evidence arguments submitted under the U.S. EPA's Endocrine Disruptor Screening Program. She is experienced in predictive tools for environmental fate and effects modeling used in Toxic Substances Control Act (TSCA) programs, as well as the development of read-across strategies, preparation of robust summaries, development of test plans, and preparation of risk evaluations.

## Academic Credentials & Professional Honors

M.S., Environmental Chemistry and Biology, University of North Carolina, Chapel Hill, 1979

B.S., Biology, College of William and Mary, 1976

Fellow, Society of Environmental Toxicology and Chemistry, 2016

Eugene Kenaga Membership Award, SETAC, 2010

## Prior Experience

Principal Environmental Scientist, ARCADIS U.S., Inc., 1998-2010

Associate, The Cadmus Group, Inc., May 1998-December 1998

Independent Consultant, January 1998-May 1998

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President and Testing Facility Manager, Carolina Ecotox, Inc., 1994-1998

Associate, Malcolm Pirnie, Inc., 1981-1994

Aquatic Toxicologist, Union Carbide Corporation, 1979-1981

## Professional Affiliations

American Society for Testing and Materials, Committee E-47 (Biological Effects and Environmental Fate): Recipient of Exceptional Service Award (1994); Membership Secretary (1993-2001); Chair, Third Symposium on Environmental Toxicology and Risk Assessment (1993); Co-Chair, First Symposium on Environmental Toxicology and Risk Assessment (1991); Nominations Subcommittee (1990-1993); Chair, Duckweed Task Group; Chair, Microalgae Task Group; Secretary, Aquatic Toxicology Subcommittee

Society of Environmental Toxicology and Chemistry: Past-President, SETAC, 2011; President, SETAC, 2010; Vice-President, SETAC, 2009; SETAC World Council, 2006-2011; Chair, SETAC Public Relations and Communications Committee, 2008-2009; President, SETAC North America, 2007; Board of Directors, SETAC North America, 2003-2008; Steering Committee member, Pharmaceuticals Advisory Group, 2007-2010 and 2016-2021; Co-Chair, 19th Annual SETAC Meeting (1998); Global Awards Committee (2013 - 2016); Meetings Committee (2014 - 2016); Government Affairs Committee (1999-2002); Education Committee (1994-1997); Nominations Committee (1992); Short course instructor (1993); Session chair or co-chair (multiple meetings)

Society of Environmental Toxicology and Chemistry, Carolinas Chapter: President, 1994; Vice-President, 1993; Board of Directors, 1993-1996 and 1996-1999; Nominations Committee, 1992-1995 and 1999-2002; Co-Chair, First Annual Carolinas SETAC Symposium, 1992

Society for Risk Analysis, Research Triangle Chapter and SETAC, Carolinas Chapter: Co-Chair, Workshop on "Barriers and Bridges to Integrating Health and Ecological Risk Assessment," October, 2000; Co-Chair, Workshop on "Emerging Contaminants in the Aquatic Environment: Risk and Regulatory Perspectives," October, 2002

Water Environment Federation: Microconstituents Community of Practice; Ecology and Aquatic Resources Committee; Toxic Substances Committee; Standard Methods Committee and Joint Task Group on Toxicity; Session Moderator, "Microconstituents in the Aqueous Environment," WEFTEC, 2008; Chair, Events Subcommittee, National TMDL Science and Policy Conference, 2002; Chair, Workshop Subcommittee, TMDL 2003 Conference

## Publications

*J.P. Staveley is also published under J.S. Hughes*

Fleming M, Staveley J, Samel A, Aufderheide J, Blickley TM, Bone A, Bruns E, Catron T, Edwards D, Gallagher S, Habekost M, Habig C, Henry K, Jones A, Kraetzig G, Long S, Lopez-Mancisidor P, Marini J, Milligan A, Olson A, O'Neill B, Peterson E, Sayers L, Schneider S, Stump K, Taylor S, and Valenti T. 2025. Critical review of chronic toxicity testing approaches with the saltwater mysid (Americamysis bahia) used in pesticide registration. Environ. Toxicol. Chem. 44(4): 916-925.

Staveley JP, Freeman EL, McArdle ME, Ortego LS, Coady KK, Bone A, Lagadic L, Weltje L, Weyers A, and Wheeler JR. 2022. Current testing programs for pesticides adequately capture endocrine activity and adversity for protection of vertebrate wildlife. Integrated Environmental Assessment and Management 19(4): 1089 – 1109.

McArdle ME, Freeman EL, Staveley JP, Ortego LS, Coady KK, Weltje L, Weyers A, Wheeler JR and

Bone AJ. 2020. Critical review of read-across potential in testing for endocrine-related effects in vertebrate ecological receptors. Environ. Toxicol. Chem. 39(4): 739-753.

Staveley JP, Green JW, Nusz J, Edwards D, Henry K, Kern M, Deines AM, Brain R, Glenn B, Ehresman N, Kung T, Ralston-Hooper K, Kee F, McMaster S. 2018. Variability in nontarget terrestrial plant studies should inform endpoint selection. Integrated Environmental Assessment and Management 14(5): 649-648.

Fort DJ, Mathis MB, Kee F, Whatling P, Clerkins D, Staveley J, Habig C. (2017). Evaluation of an acute oral gavage method for the evaluation of pesticide toxicity in terrestrial amphibians. Environmental Toxicology and Chemistry 37(2): 436-450.

Neal BH, Bus J, Marty MS, Coady K, Williams A, Staveley J, Lamb JC. (2017): Weight-of-the-evidence evaluation of 2,4-D potential for interactions with the estrogen, androgen and thyroid pathways and steroidogenesis, Critical Reviews in Toxicology. http://dx.doi.org/10.1080/10408444.2016.1272094.

Harris MJ, Huggett DB, Staveley JP, Sumpter, JP. (2017). What training and skills will the ecotoxicologists of the future require? Integrated Environmental Assessment and Management 13(4): 580-584.

Staveley J. (2017). Special section: environmental fate and effects of 17α-trenbolone and 17α-estradiol. Environmental Toxicology and Chemistry 36(3): 612.

Robinson JA, Ma Q, Staveley JP, Smolenski WJ. (2017). Sorption and desorption of 17α-trenbolone and trendione on five soils. Environmental Toxicology and Chemistry. 36(3): 613-620.

Robinson JA, Staveley JP, Constantine L. (2017). Reproductive effects on freshwater fish exposed to 17α-trenbolone and 17α-estradiol. Environmental Toxicology and Chemistry. 36(3): 636-644.

Robinson JA, Ma Q, Staveley JP, Smolenski WJ, Ericson J. (2017). Degradation and transformation of 17α-estradiol in water — sediment systems under controlled aerobic and anaerobic conditions. Environmental Toxicology and Chemistry. 36(3): 621-629.

Robinson JA, Ma Q, Staveley JP, Smolenski WJ, Ericson J. (2017). Degradation and transformation of 17α-trenbolone in aerobic water-sediment systems. Environmental Toxicology and Chemistry. 36(3): 630-635.

Brain R, Staveley J, Ortego L. (2016). In response: Resolving the perception of bias in a discipline founded on objectivity - A perspective from industry. Environmental Toxicology and Chemistry 35(5): 1070-1072.

Staveley JP, Touart LW, Solomon K, Mihaich E, Blankinship A, Ankley G. (2016) Endocrine disruption: where have we been, interpretation of data, and lessons learned from Tier 1. PeerJ Preprints 4:e2596v1 https://doi.org/10.7287/peerj.preprints.2596v1.

Staveley, J, Wentsel, R. The challenge: How can we improve the quality of ecotoxicology research to increase relevance and use in regulatory decision-making? Environmental Toxicology and Chemistry 2016; 35(1).

Lamb JC, Bofetta P, Foster WG, Goodman JE, Hentz KL, Rhomberg LR, Staveley J, Swaen G, Van Der Kraak G, Williams AL. Comments on the opinions published by Bergman et al. (2015) on Critical comments on the WHO-UNEP State of the Science of Endocrine Disrupting Chemicals (Lamb et al. 2014). Regulatory Toxicology and Pharmacology 2015; 754-757.

Lamb JC, Bofetta P, Foster WG, Goodman JE, Hentz KL, Rhomberg LR, Staveley J, Swaen G, Van Der Kraak G, Williams AL. Critical comments on the WHO-UNEP State of the Science of Endocrine Disrupting

Chemicals - 2012. Regulatory Toxicology and Pharmacology 2014; 69:22-40.

Borgert CJ, Stuchal LD, Mihaich EM, Becker RA, Bentley KS, Brausch JM, Coady K, Geter DR, Gordon E, Guiney PD, Hess F, Holmes CM, LeBaron MJ, Levine S, Marty S, Mukhi S, Neal BH, Ortego LS, Saltmiras DA, Snajdr S, Staveley J, Tobia A. Relevance weighting of Tier 1 endocrine screening endpoints by rank order. Birth Defects Research (Part B) 2014; 101:90-113.

Staveley JP, Law SA, Fairbrother A, Menzie CA. A causal analysis of observed declines in managed honey bees (Apis mellifera), Human and Ecological Risk Assessment: An International Journal, 2014: 20:2, 566-591, DOI: 10.1080/10807039.2013.831263.

Green JW, Springer TA, Staveley JP. The drive to ban the NOEC/LOEC in favor of the ECx is misguided and misinformed. Integrated Environmental Assessment and Management 2013: 9(1):12-16.

Staveley JP, Hillwalker WE. GLP: Still vital but not a panacea. Chemical Watch Briefing 2012 June.

Boxall AB, Rudd MA, Brooks BW, Caldwell DJ, Choi K, Hickmann S, Innes E, Ostapyk K, Staveley JP, Verslycke T, et al. Pharmaceuticals and personal care products in the environment: what are the big questions? Environmental Health Perspectives, online 31 May 2012. http://dx.doi.org/10.1289/ehp.1204993.

Bamford JE, Butler AD, Heim KE, Pittinger CA, Lemus R, Staveley JP, Lee KB, Venezia C, Pardus MJ. Toxicity of sodium tungstate to earthworm, oat, radish and lettuce. Environmental Toxicology and Chemistry 2011; 30(10):2312-2011.

Bahe A, Staveley J, Classen J, Williams B. Emerging environmental contaminants: current science and policy concerns. In: Animal Agriculture and the Environment: National Center for Manure and Animal Waste Management White Papers. Rice JM, Caldwell DF, Humenik FJ (eds), ASABE, St. Joseph, MI, 2006.

Sadler ME, Staveley JP. Emerging environmental contaminants: Drugs and other chemicals are a growing challenge to water quality. Watershed & Wet Weather Technical Bulletin 2004; 9(2):1-5. Also published in Water Environment Laboratory Solutions 2004; 11(4):1-6.

Staveley JP, Christman JN, Sager SL. TMDL requirements cause potential conflicts with other federal statutes. Watershed & Wet Weather Technical Bulletin 2002; 5(1):6-9.

Staveley JP, Christman JN. TMDLs: Regulatory implications beyond the Clean Water Act. Hydrological Science and Technology 2001; 17(1-4):331-340.

Lutes CC, Herd LL, Staveley JP, Barber TR, Curtin T, Rubesa F. Managing ecological and human health risk from sediment and fish at a CERCLA site: Innovative tools. Hydrological Sci Technol 2001; 17(1-4):223-236.

Wells PG, Butler J, Hughes JS (eds). Exxon Valdez Oil Spill: Fate and Effects in Alaskan Waters. ASTM STP 1219, American Society for Testing and Materials, Philadelphia, PA, 1995.

Hughes JS, Alexander MM, Balu K. An evaluation of appropriate expressions of toxicity in aquatic plant bioassays as demonstrated by the effects of atrazine on algae and duckweed. Aquatic Toxicology and Hazard Assessment: 10th Volume, ASTM STP 971, Adams WJ, Chapman GA, Landis WG (eds), 1988, American Society for Testing and Materials, Philadelphia, pp. 531-547.

Erten-Unal M, Gelderloos AB, Hughes JS. A toxicity reduction evaluation for an oily waste treatment plant exhibiting episodic effluent toxicity. Sci Total Environ 1988; 218:141-152.

Hughes JS, Vilkas AG. The toxicity of N,N-dimethyl-formamide used as a solvent in toxicity tests with the

green alga, Selenastrum capricornutum. Bull Envir Contam Toxicol 1983; 31:98-104.

### Books

Wang W, Gorsuch J, Hughes JS (eds). Plants for Environmental Studies. CRC Press/Lewis Publishers, Boca Raton, FL, 1997.

Hughes JS, Biddinger GR, Mones E (eds). Environmental Toxicology and Risk Assessment. 3rd Symposium, ASTM STP 1218, American Society for Testing and Materials, Philadelphia, PA, 1995.

Wells PG, Butler JN, Hughes JS, (eds). Exxon Valdez Oil Spill: Fate and Effects in Alaskan Waters. ASTM STP 1219, American Society for Testing and Materials, Philadelphia, PA. 1995.

Landis WG, Hughes JS, Lewis MA (eds). Environmental Toxicology and Risk Assessment. ASTM STP 1167, American Society for Testing and Materials, Philadelphia, PA, 1993.

### Book Chapters

Metcalfe C, Boxall A, Fenner K, Kolpin D, Servos M, Silberhorn E, Staveley J. Exposure assessment of veterinary medicines in aquatic systems. Chapter 4. In: Veterinary Medicines in the Environment. Crane M, Boxall ABA, Barrett K, (eds), CRC Press, Taylor & Francis Group, 2009.

Staveley JP, Smrchek JC. Algal toxicity test. pp.181-202. In: Small-Scale Freshwater Toxicity Investigations, Volume 1: Toxicity Test Methods. Blaise C, Férard F (eds), Kluwer Academic Publishers, 2005.

### Presentations

Staveley JP. Use of acute earthworm toxicity test results in the absence of chronic test results for the environmental assessment of veterinary medicinal products. Poster presentation. SETAC SciCon2, November 15-19, 2020.

Rodea Palomares IM, Edwards D, and Staveley JP. Plant variability project 2.0: what to do if an ER05 cannot be reliably estimated? Platform presentation. SETAC SciCon2, November 15-19, 2020.

Feifarek D, Staveley JP, McArdle ME, Freeman E, Hillwalker WE. Bioactivity models as tools for predicting endocrine-mediated adversity: regulatory significance. Poster presentation. 40th Annual SETAC North America meeting, Toronto, Ontario, November 3-7, 2019.

Deines AM, Staveley JP, Huggett D, Terneus M. Non-target dung fauna population model to evaluate environmental impacts following use of an active pharmaceutical ingredient (API) in cattle. Poster presentation. 40th Annual SETAC North America meeting, Toronto, Ontario, November 3-7, 2019.

Staveley J. Environmental Toxicology and Ecological Risk Assessment, Module 12: Basic Training in Toxicology E-Learning Series provided by the American College of Toxicology and the British Toxicology Society. 13 December 2017.

Staveley J, Ma Q, Ma J, Celly C, Scheef G. Environmental assessment of a veterinary drug (Revalor-XR) containing trenbolone acetate and 17β-estradiol. Platform presentation. 38th Annual SETAC North America meeting, Minneapolis MN, November 12-17, 2017.

Nusz J, Staveley J, Thiry J, Scheef G. Assessing Ecological Risk from the Use of a Veterinary Medicinal Product in Cattle: Innovative Approaches for Wildlife Exposure Assessment. Platform presentation. 38th Annual SETAC North America meeting, Minneapolis MN, November 12-17, 2017.

McArdle M, Staveley J, Freeman E, Ortego L, Coady K, Weltje L. Use of read-across for testing estrogen,

androgen, thyroid and steroidogenesis pathways in vertebrate ecological receptors. Poster presentation. 38th Annual SETAC North America meeting, Minneapolis MN, November 12-17, 2017.

Ma Q, Staveley J, Ma J, Celly C, Scheef G. Groundwater and surface water exposure assessments of a veterinary drug (Revalor-XR) containing trenbolone acetate and 17β-estradiol. Poster presentation. 38th Annual SETAC North America meeting, Minneapolis MN, November 12-17, 2017.

Staveley J, Green JW, Edwards D, Henry K, Kern M, Nusz J, Brain R, Deines A, Glenn B, Ehresman N, Kung T, Ralston-Hooper K, Kee F and McMaster S. Variability in non-target terrestrial plant studies should inform endpoint selection. Invited speaker, U.S. EPA's Environmental Modeling Public Meeting, Arlington, VA, 18 October 2017.

Staveley J. "Guidance for risk evaluations conducted by industry" and "Use of modeling and surrogates in lieu of testing", Presentations, TSCA One Year On: Practical Workshop, sponsored by Chemical Watch, Washington DC, 17 October 2017.

Ma Q, Staveley J, Ma J, Scheef G, Celly C. A unique watershed-level assessment for a veterinary medicinal product (Revalor-XR) containing trenbolone acetate and 17β-estradiol. Platform presentation, 254th ACS National Meeting, Washington DC, 20-24 August 2017.

Staveley J, Nusz J, Thiry J, Scheef G. Innovative approaches for assessing risk to wildlife from the use of a veterinary medicinal product in cattle. Poster presentation, 254th ACS National Meeting, Washington DC, 20-24 August 2017.

Staveley J, Harris M, Huggett D, Sumpter J. A call to action: improving the usability of academic research in regulatory decision-making. Platform presentation. 7th SETAC World Congress, Orlando FL, 6-10 November 2016.

Staveley J, Freeman E, McArdle M, Ortego L, Coady K, Weltje L. Testing for endocrine-mediated effects in vertebrate ecological receptors: potential for read-across. Platform presentation. 7th SETAC World Congress, Orlando FL, 6-10 November 2016.

Nusz J, Freeman E, Staveley J. Preparing for the new TSCA: How the TSCA Work Plan and EPA Safer Choice Standard can help. Poster presentation. 7th SETAC World Congress, Orlando FL, 6-10 November 2016.

Long S, Staveley J, Polakoff B, Coler R, Hoberg J, Patnaude M, Rathjen K. The unforeseen challenges of pollinator toxicity test matrices. Poster presentation. 7th SETAC World Congress, Orlando FL, 6-10 November 2016.

Gates J, Valenti T, Kabler A, Jones A, Samel A, Green J, Staveley J, Sharma B, McGee S, McCoole M, Wang J, Habekost M, Krueger H, Bradley M, Picard C, Giddings J, Cafarella M, Thomas S, Saab I. An evaluation of endpoints from benthic invertebrate chronic toxicity tests based on draft US FIFRA guidance - Part II. Poster presentation. 7th SETAC World Congress, Orlando FL, 6-10 November 2016.

Valenti T, Kabler A, Samel A, Jones A, Green J, Staveley J, Sharma B, McCoole M, Wang J, Habekost M, Krueger H, Thomas S, Bradley M, Picard C, Giddings J, Gates J, Cafarella M, Saab I, Henry K. Evaluating the relative sensitivity of endpoints generated during midge life-cycle tests for US FIFRA sediment toxicity test requirements - Part II. Poster presentation. 7th SETAC World Congress, Orlando FL, 6-10 November 2016.

Staveley J, Green JW, Edwards D, Henry K, Kern M, Nusz J, Brain R, Deines A, Glenn B, Ehresman N, Kung T, Ralston-Hooper K, Kee F and McMaster S. Variability in non-target terrestrial plant studies should inform endpoint selection. Poster presentation, 26th Annual Meeting of SETAC Europe, Nantes, France, May 22-26, 2016.

Staveley J, Green JW, Edwards D, Henry K, Kern M, Nusz J, Brain R, Deines A, Glenn B, Ehresman N, Kung T, Kee F, and Ralston-Hooper K. The impact of variability in non-target terrestrial plant studies on endpoint selection. Presented at the U.S. EPA's Environmental Modeling Public Meeting, Arlington, VA, May 9, 2016.

Cohen S, Augspurger T, Guiney P, Johnson M, Lev S, Menzie C, Sibley P, Staveley J, Vigon B, Walker J, Williams S. Making science matter for Congress: the SETAC NA TSCA Reform Dialog Group. Platform presentation, 36th Annual Meeting of SETAC North America, Salt Lake City, UT, November 1-5, 2015.

Staveley J, Augspurger T, Guiney P. Sustaining the SETAC brand: experiences with SETAC's public outreach policy. Platform presentation, 36th Annual Meeting of SETAC North America, Salt Lake City, UT, November 1-5, 2015.

Goodfellow W, Staveley J, Wentsel R. Building environmental programming through tripartite representation: successes and challenges. Platform presentation, 36th Annual Meeting of SETAC North America, Salt Lake City, UT, November 1-5, 2015. Platform presentation, 36th Annual Meeting of SETAC North America, Salt Lake City, UT, November 1-5, 2015.

Guiney P, Cohen S, Staveley J, Johnson M. Improving weight of evidence for regulatory decision-making: A SETAC tri-partite perspective. Platform presentation, 36th Annual Meeting of SETAC North America, Salt Lake City, UT, November 1-5, 2015.

Staveley J. Compliance with Good Laboratory Practices (GLP) does not guarantee study quality. Platform presentation, 36th Annual Meeting of SETAC North America, Salt Lake City, UT, November 1-5, 2015.

Whaley J, Fairbrother A, Staveley J. Exploring collaboration and business opportunities in One Health. Platform presentation, 36th Annual Meeting of SETAC North America, Salt Lake City, UT, November 1-5, 2015.

Staveley J, Edwards D, Green J, Henry K, Kern M, Nusz J. The impact of variability in non-target terrestrial plant studies on endpoint selection. Poster presentation, 36th Annual Meeting of SETAC North America, Salt Lake City, UT, November 1-5, 2015.

Feken M, Blickley T, Brugger K, Carro T, Christ M, Edwards P, Fredricks T, Henry K, Kern M, McGee S, Moore D, Mortensen S, Plautz S, Staveley J, Womack F. Passerine dietary (LC50) test: challenges and utility in deriving an acute endpoint for pesticide registration in the U.S. Poster presentation, 36th Annual Meeting of SETAC North America, Salt Lake City, UT, November 1-5, 2015.

Valenti T, Gates J, Bradley M, Cafaraella M, Giddings J, Krueger H, McGee S, Samel A, Sharma B, Staveley J, Wang J. Evaluating the relative sensitivity of endpoints generated during midge life-cycle sediment toxicity tests. Platform presentation, 36th Annual Meeting of SETAC North America, Salt Lake City, UT, November 1-5, 2015.

Staveley J, Agerstrand M. Improving usability of ecotoxicology in regulatory decision-making: initial findings from a SETAC Pellston workshop. Platform presentation, 36th Annual Meeting of SETAC North America, Salt Lake City, UT, November 1-5, 2015.

Gates J, Valenti T, Cafarella M, Sharma B, Bradley M, Samel A, Staveley J, McGee S, Habekost M, Krueger H. An evaluation of endpoint sensitivity for benthic invertebrate chronic toxicity tests. Poster presentation, 36th Annual Meeting of SETAC North America, Salt Lake City, UT, November 1-5, 2015.

McMaster S, Staveley J, Nusz J and Kashuba R. Characterizing the range in sensitivities of aquatic and terrestrial plants to 2,4-D: a quantitative approach to selection and evaluation of data. Poster presentation, American Chemical Society, Boston, MA, August 16-20, 2015.

Staveley J, Manibusan M, Freeman E, Neal B. Endocrine disruptors: Regulatory requirements,

implications and options. Invited platform presentation, Stewardship 2015 (Second Annual Meeting of the Product Stewardship Society), Salt Lake City, UT, June 1-3, 2015.

Staveley J. Assessing data quality and strength of evidence. Platform presentation, SETAC International Programs Committee Symposium "Application of Weight-of-Evidence (WoE) in Risk-based Ecological Assessment Frameworks," Barcelona, Spain, May 3, 2015.

Green J, Springer T, Staveley J. Challenges for statistical analysis of ecotoxicology experiments. Platform presentation, 25th Annual Meeting of SETAC Europe, Barcelona, Spain, May 3-7, 2015.

Staveley J, Nusz J. Considerations in selecting endpoints from ecotoxicity tests: An example using algae and cyanobacteria. Poster presentation, 25th Annual Meeting of SETAC Europe, Barcelona, Spain, May 3-7, 2015.

Staveley J. The EC05 is not an appropriate endpoint for algal toxicity tests. Platform presentation, 35th Annual Meeting of SETAC North America, Vancouver, BC, November 9-13, 2014.

Staveley J. Improving the utility of ecotoxicity testing in regulatory decision-making. Platform presentation, 35th Annual Meeting of SETAC North America, Vancouver, BC, November 9-13, 2014.

Fredricks TB, Brugger K, Carro T, Christ M, Edwards PJ, Henry KS, Hillwalker WE, Kern ME, Moore DRJ, Mortensen SR, Staveley JP. Passerine acute oral dose update 2014. Poster presentation, 35th Annual Meeting of SETAC North America, Vancouver, BC, November 9-13, 2014.

Hillwalker W, Staveley J, Carbone J, Schocken M. An evaluation of the dietary LD50 for risk characterization and implications for designing toxicity tests for passerine species. Poster presentation, 35th Annual Meeting of SETAC North America, Vancouver, BC, November 9-13, 2014.

Staveley J, Law S, Menzie C, Fairbrother A. A causal analysis of observed declines in managed honey bees (Apis mellifera) with a focus on pesticides. Poster presentation, 13th IUPAC International Congress of Pesticide Chemistry, San Francisco CA, August 10-14, 2014.

Staveley J. Ecological risk assessment: Approaches and tools for product stewards. Invited platform presentation, Stewardship 2014, 1st Annual Meeting of the Product Stewardship Society, San Antonio TX, May 31-June 5, 2014.

Freeman E, Kierski M, Koblis K, Staveley J, Bamford JA. Chemical risk prioritization scoring process for the oil and gas exploration and production industry. Poster presentation, Society of Toxicology 53rd Annual Meeting, Phoenix, AZ, March 24-27, 2014.

Zahner H, Staveley J. Approaches to the evaluation of endocrine disrupting compounds at various government agencies. Platform presentation. SETAC North America Focused Topic Meeting "Endocrine Disruption: Chemical Testing, Risk Assessment Approaches and Implications," Research Triangle Park NC, February 5-6, 2014.

Hillwalker, W, Stafford J, Brewer L, Schocken M, Staveley J. Regurgitation and avoidance in passerine acute studies - A case study and a path forward. Poster presentation, 34th Annual Meeting of SETAC North America, Nashville, TN, November 17-21, 2013.

Staveley JP, Endris R, Scheef, G. Predicting environmental exposure of aquaculture medicines. Presented at the 34th Annual Meeting of SETAC North America, Nashville, TN, November 17-21, 2013.

Staveley JP, Law SA, Fairbrother A, Menzie CA. A causal analysis of observed declines in managed honey bees (Apis mellifera). Presented at the 34th Annual Meeting of SETAC North America, Nashville, TN, November 17-21, 2013.

Staveley JP, Endris R, Scheef G. Approaches for calculating environmental exposures of aquaculture medicines. Poster presentation, 23rd Annual Meeting of SETAC Europe, Glasgow, UK, May 11-16, 2013.

Neal B, Staveley J, Freeman E, Williams A, Lamb J, DeSesso J. Weight of the Evidence (WoE) evaluation of Endocrine Disruptor Screening Program Tier 1 assays: Lessons learned. Poster corner presentation, 23rd Annual Meeting of SETAC Europe, Glasgow, UK, May 11-16, 2013.

Hillwalker W, Staveley J. GLP/guideline and non-GLP/research studies can co-exist in regulatory decision-making paradigms. Poster presentation, 33rd Annual Meeting of SETAC North America, Long Beach, CA, November 11-15, 2012.

Freeman E, Staveley J. Authoring product stewardship summaries to comply with Responsible Care ® initiatives. 14th Annual Meeting of the Society for Chemical Hazard Communication, Nashville, TN, March 31-April 4, 2012.

Staveley JP. Impacts of pharmaceuticals and personal care products in the environment: What are the big questions? Invited presentation at the Annual Meeting and Exposition of the American Association of Pharmaceutical Scientists (AAPS), Washington, DC, October 23-27, 2011.

Staveley JP. Environmental assessment of human and veterinary medicines: Issues, trends, and lessons learned. Annual Meeting and Exposition of the American Association of Pharmaceutical Scientists (AAPS), Washington, DC, October 23-27, 2011.

Staveley JP, Endris R. Environmental assessment of the antibiotic florfenicol for use in warmwater aquaculture systems. Invited presentation at the 242nd American Chemical Society (ACS) Annual Meeting, Denver, CO, August 28-September 1, 2011.

Staveley JP, Sellers K, Hassinger C, Endris R. Environmental assessment of the antibiotic florfenicol for use in a variety of aquaculture systems. Presented at the 31st annual meeting of SETAC in North America, Portland OR, November 7-11, 2010.

Staveley JP, Sellers K, Hassinger C, Endris R. Environmental assessment of the use of SLICE ® (emamectin benzoate) in saltwater aquaculture. Presented at the 31st annual meeting of SETAC in North America, Portland OR, November 7-11, 2010.

Moderator, Congressional Science Briefing on Pharmaceuticals in Our Water: Concerns and Responses, sponsored by the American Chemical Society, the Society of Toxicology, and the Society for Risk Analysis, September 14, 2010.

Staveley JP, Brooks BW, Eignor D. Risk assessment 101: The process, principles, and related fundamentals. Webinar presented by the Water Environment Federation, October 28, 2009.

Session Moderator: "Microconstituents in the Aqueous Environment: What do we know and what does it mean?", WEFTEC, Chicago, IL, October 22, 2008.

Staveley JP. Implementation strategies for REACH. Presented at the Annual Manufacturers and Chemical Industry Council Environmental Health and Safety School, Raleigh, NC, August 26, 2008.

Staveley JP. Development of a toxicity test for a submersed aquatic macrophyte. Presented at the 27th Annual SETAC Meeting in North America, November 5-9, 2006, Montreal, Canada.

Staveley JP, Fuchsman P, Sheffield A, Weinberg N. Evaluation of water quality translators for mercury: Charting the complex course from a fish dinner to a permit limit. Presented at WETEC, Washington, DC, November 2, 2005.

Staveley JP, Fuchsman P, Sheffield A, Weinberg N, 2005. Overview of approaches to mercury TMDLs:

Charting the complex course from a fish dinner to a permit limit. Presented at TDML 2005, Philadelphia, PA, June 26-29, 2005.

Sadler ME, Staveley JP. Scientific and regulatory perspectives on the emerging environmental contaminants issue. Proceedings, 76th Annual Water Environment Federation Technical Exposition and Conference, 2003.

Staveley JP, Leitman PA, Smrchek JC. Meta-analysis of algal toxicity test data: Implications for harmonizing test methods and maximizing regulatory use. Presented at the 24thAnnual SETAC-NA Meeting, Austin, TX, November 9-13, 2003.

Staveley JP. Advances in the derivation and implementation of water quality criteria. Presented at the TMDL 2003 Conference, Chicago, IL, November 18, 2003 and at the 2003 Environmental Health and Safety School, sponsored by the Manufacturers and Chemical Industry Council of North Carolina, Research Triangle Park, NC, August 18, 2003.

Staveley JP, Sager SL, Silberhorn EM, Hayward JJ, Schlosser PM. Emerging contaminants in the aquatic environment: risk and regulatory perspectives — A Workshop. Presented at the 23rd Annual SETAC meeting, Salt Lake City, UT, November 16-20, 2002.

Silberhorn EM, Staveley JP. Emerging environmental contaminants: Implications of the Current U.S. Regulatory Framework. Presented at the 23rd Annual SETAC meeting, Salt Lake City, UT, November 16-20, 2002.

Staveley JP, Payne F. Effects of pharmaceuticals on the environment. Workshop presented at the 2002 Annual Meeting of the International Society of Pharmaceutical Engineers, Orlando, FL, November 4, 2002.

Sadler ME, Staveley J, Bahe A. Placing the emerging environmental contaminants issue into perspective. Proceedings, 2002 Annual Conference of the NC AWWA/WEA, Winston-Salem, NC, November 17-20, 2002.

Staveley JP. Non-target plant risk assessment: Issues and opinions. Presented at the Non-target Plant Risk Assessment Workshop for Regulators, Alexandria, VA, January 15-17, 2002.

Staveley JP, Ingersoll CG. Comparison of standard methods for conducting sediment and aquatic and terrestrial plant toxicity tests. Presented at the 22nd Annual SETAC meeting, Baltimore, MD, November 11-15, 2001.

Samel A, Staveley JP. Harmonization success stories: Chronic Daphnid Test and the Lemna Growth Inhibition Test. Presented at the 22nd Annual SETAC meeting, Baltimore, MD, November 11-15, 2001.

Fava J, Biddinger G, Schenck R, Staveley J. Proposed framework for incorporation of environmental, economic, and social aspects into improved decision making. Presented at the 22nd Annual SETAC meeting, Baltimore, MD, November 11-15, 2001.

Staveley JP, Christman J, Sager S. Potential conflicts between TMDLs and other federal statutes. Presented at the Water Environment Federation 74th Annual Conference and Exposition, Atlanta, GA, October 13-17 and at "TMDLs: The What, the Why and the How," N.C. AWWA/WEA Seminar, Burlington, NC, December 4-5, 2001.

Staveley JP, Christman JN. TMDLs: Regulatory implications beyond the Clean Water Act. 21st Annual SETAC meeting, Nashville, TN, November 12-16, 2000.

Lutes CC, Herd LL, Staveley JP, Barber TR, Curtin T, Rubesa F. Managing ecological and human health risk from sediment and fish at a CERCLA site: Innovative tools. AIH 2000 Annual Meeting and

International Conference on Atmospheric, Surface, and Subsurface Hydrology and Interactions, Research Triangle Park, NC, November 5-8, 2000.

Staveley JP, Jarabek A, Dewoskin R, Schlosser PM. Barriers and bridges to integrating health and ecological risk assessment: A Workshop. Presented at the Society for Risk Analysis Annual Meeting, Arlington, VA, December 3-6, 2000.

Sager SL, Staveley JP, Wisbeck DD. The role of TMDLs in reopening Superfund sites. Presented at the 21st Annual SETAC meeting, Nashville, TN, November 12-16, 2000.

Staveley JP, Smrchek JC. Evaluation and comparison of the relative merits of various parameters used to express the results (at 72 hours and 96 hours) of algal toxicity tests. Presented at the 20th Annual SETAC meeting, Philadelphia, PA, November 14-18, 1999.

Hughes JS, Alexander MM. Effect of an herbicide on the growth of a submersed aquatic macrophyte, Myriophyllum sp. Presented at the 18th Annual SETAC meeting, San Francisco, CA, November 16-20, 1997.

Hughes JS, Powell RL, Nelson MK. Development and validation of phytotoxicity tests with emergent and submerged aquatic plants. Presented at the 17th Annual SETAC meeting, Washington, DC, November 17-21, 1996.

Hughes JS, Conder M, Alexander MM, Christensen GW. When water is not water: Matrix differences complicate method validation in GLP studies. Presented at the 2nd SETAC World Congress, Vancouver, BC, November 5-9, 1995.

Conder M, Hughes JS, Alexander MM, Christensen GW. Analytical method modifications due to matrix differences in aquatic plant tests: Case studies. Presented at the 2nd SETAC World Congress, Vancouver, BC, November 5-9, 1995.

Alexander MM, Hughes JS, Williams TL. Harmonization of aquatic plant toxicity testing procedures: Assessment of test duration. Presented at the Second SETAC World Congress, Vancouver, BC, November 5-9, 1995.

Hughes JS, Cañez VM, Powell R. Toxicity assessment with aquatic and terrestrial plants. Invited Short Course presented at the 14th Annual SETAC Meeting, Houston, TX, November 14, 1993.

Alexander MM, Hughes JS. Evaluation of the relative sensitivities of five non-target aquatic plant species to various pesticides: Update. Presented at the 14th Annual SETAC meeting, Houston, TX, November 14-18, 1993.

Hughes JS, Erten MU, Gelderloos AB, Wallace CH. Toxicity reduction evaluation for an oily wastewater treatment plant with episodic toxicity. Presented at the 13th Annual SETAC Meeting, Cincinnati OH, November 8-12, 1992.

Hughes JS, Murphy JG. Key issues in analytical support of aquatic toxicology studies: lessons learned the hard way. Presented at the 13th Annual SETAC Meeting, Cincinnati OH, November 8-12, 1992.

Hughes JS. Toxicity evaluation and reduction: Case studies. Presented at the New York Water Pollution Control Association Central Chapter Meeting, Liverpool NY, October 23, 1992.

Hughes JS. The use of aquatic plant toxicity tests in biomonitoring programs. Proceedings, 18th Aquatic Toxicity Workshop: Ottawa, Ontario, Canadian Technical Report of Fisheries and Aquatic Sciences #1863, Niimi AJ, Taylor MC (eds), September 3-October 3, 1991. (Invited).

Alexander MM, Hughes JS. Comparison of the results from 7-day and 14-day toxicity tests with Lemna

gibba. Presented at the 1st Symposium on Environmental Toxicology and Risk Assessment, sponsored by ASTM Committee E-47, Atlantic City, NJ, April 14-16, , 1991.

Riznychok WM, Hughes JS. Impact of toxicity regulations on authorities. Presented at the Spring Conference of the Authorities Associations of New Jersey, Atlantic City, NJ, March 7-8, 1990.

Hughes JS, Alexander MM, Erb K. The relative sensitivity of five non-target aquatic plant species to various pesticides. Presented at the 10th Annual SETAC meeting, Toronto, Ontario, October 28-November 2, 1989.

Hughes JS, Black R, Schwenneker B. Predicting aquatic bioaccumulation of emissions of 2,3,7,8-TCDD and mercury from a resource recovery facility. Presented at the 8th Annual SETAC meeting, Pensacola, FL, November 9-12, 1987.

Hughes JS. The utility of laboratory algal toxicity tests. Presented at the 8th Annual SETAC meeting, Pensacola, FL, November 9-12, , 1987. (Invited).

Vilkas AG, Doebbler GF, Kuc WJ, Hughes JS. Permethrin model aquatic ecosystem study. Presented at the 5th Annual SETAC meeting, Washington, D.C., November 4-7, 1984.

Krishnaswami SK, Hughes JS. Computer aid in determining contaminants risk/hazard potential at hazardous waste disposal sites. Presented at the 112th Annual Meeting of the American Public Health Association, Anaheim, CA, November, 11-15, 1984.

Hughes JS, Mann MJ, Krishnaswami SK. A risk assessment approach for remedial actions at hazardous waste sites. Presented at the 4th Annual SETAC meeting, Washington, D.C., November 6-9, 1983.

## Project Experience

Project manager for one of the first manufacturer-requested risk evaluations to be submitted under TSCA. Directed multi-disciplinary team in the completion of a systematic review of available information to assess environmental and human health risks of octamethylcyclotetrasiloxane (D4).

Prepared a critical review of the technical basis for proposed regulations for pollinator protection issued by the California Department of Pesticide Regulation.

Prepared study summaries, waiver requests, and an ecological risk assessment for proposed uses of a plant growth regulator.

Served as project manager and technical expert for multiple projects to prepare Phase II (VICH) Environmental Assessments and Expert Reports for veterinary pharmaceuticals to meet regulatory requirements in the U.S. and Europe. Drug use targets have included cattle, sheep, swine, poultry, and fish.

Served as project manager and technical expert for multiple projects to prepare environmental assessments and justifications for categorical exclusions for human pharmaceuticals to meet regulatory requirements in the U.S. and Europe.

For Merck Animal Health, project manager for preparation of unique exposure assessment of trenbolone acetate and 17β-estradiol, and contributor to the overall environmental assessment for this extended-release implant in cattle. The exposure assessment was conducted at a feedlot scale, field scale, and watershed scale and supported a Finding of No Significant Impact by the U.S. Food and Drug Administration from the use of Revalor-XR.

For CropLife America, directed a project to evaluate historical data from approximately 100 seedling emergence and vegetative vigor guideline studies on pesticides to assess the variability of control results across studies for each plant species, examine potential causes for the variation in control results, and define the minimum percent effect that can be reliably detected.

For CropLIfe Internaional, project manager for preparation of a white paper on the potential for read-across in testing for endocrine-related effects in vertebrate ecological receptors.

For Merck Animal Health, project manager for preparation of an environmental assessment of Flunixin transdermal solution, which involved innovative approaches to evaluation of potential risks to avian and mammalian receptors through scavenging, predation, and ingestion of cattle hair.

For the registrant of a new herbicide, conducted data gap analysis and served as study monitor for all needed ecotoxicity studies. This included acute and chronic studies on fish, aquatic invertebrates, aquatic plants, non-target terrestrial plants, birds, and honey bees.

For Noble Energy, participated in a team that designed a relative risk ranking system to allow prioritization of products/chemicals in use based upon both hazard and exposure. The approach identified patterns of chemical use/exposures to both occupational and environmental receptors related to activities throughout the oil and gas exploration and production life cycle.

Project manager for the organization and conduct of a workshop on causal analysis of honey bee declines, in which experts evaluated and ranked 39 potential causes of declining survival using a formal causal analysis approach.

In response to a Data Call-In for a pesticide undergoing registration review, evaluated available ecotoxicity studies, assessed data gaps, prepared requests for study waivers, and presented the findings to U.S. EPA.

Contributed to a critical review of the WHO-UNEP report on State of the Science of Endocrine Disrupting Chemicals - 2012.

Served as lead author of the Environmental Assessment for AQUAFLOR ®, an aquaculture drug produced by Intervet, Inc. d/b/a Merck Animal Health, which was fully approved by the U.S. FDA to control diseases in freshwater-reared finfish that have been associated with significant losses in U.S. aquaculture.

Prepared justifications for waivers of ecotoxicity testing requirements that have been successfully approved by U.S. EPA, saving crop protection companies many thousands of dollars in testing costs. Involved with strategy development for and conduct of ecological risk assessments for pesticide registration.

Served as project manager and technical expert for multiple projects to prepare Phase II (VICH) Environmental Assessments and Expert Reports for veterinary pharmaceuticals to meet regulatory requirements in the U.S. and Europe. Drug use targets have included cattle, sheep, swine, and fish.

Prepares environmental assessments for human pharmaceuticals and Food Contact Notifications.

Project manager for preparation of "product stewardship summaries" for a specialty chemical company. These are high-level summaries intended to provide businesses and the general public with a "user-friendly" overview of product safety information on a chemical substance.

As study monitor, provides technical oversight and facilitates interaction between sponsors and contract laboratories performing toxicity tests with aquatic plants and invertebrates, fish, sediment-dwelling organisms, terrestrial plants, honey bees, and birds to meet pesticide registration requirements.

Served as author or senior technical reviewer for Data Evaluation Reports (DERs) prepared for ecotoxicity studies submitted under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

Prepares or reviews Weight of Evidence summaries and DERs for ecotoxicology tests conducted under U.S. EPA's Endocrine Disruptor Screening Program (EDSP) Tier 1 screening battery.

Project manager for preparation of test plans and robust summaries for sponsored chemicals under the "Extended HPV Chemical Challenge" program.

For an industrial chemicals importer, provided oversight of Toxic Substances Control Act (TSCA) Premanufacture Notification (PMN) submission materials including environmental fate and effects modeling/assessment using ECOSAR, EPISuite™, ChemSTEER, and EFAST.

For a biotechnology company, prepared an Environmental Assessment of genetically modified salmon for submission to U.S. FDA's Center for Veterinary Medicine.

In a project for the U.S. EPA's Office of Prevention, Pesticides, and Toxic Substances (OPPTS), updated and prepared revisions to the draft Series 850 Ecological Effects Test Guidelines to harmonize test guidelines between the pesticides (OPP) and toxic substances (OPPT) programs.

For U.S. EPA, conducted an analysis of European and North American algal toxicity test data to develop recommendations on the appropriate response variables and endpoints to include in the revised OECD Guideline 201, Alga, Growth Inhibition Test.

Prepared an "issues paper" that provided the basis for an EPA-sponsored workshop to explore various approaches to non-target plant ecological risk assessment for pesticides. Workshop participants included regulators and scientists from state and federal agencies in the U.S. and a number of other countries. Provided technical support at the workshop, including presentation of the discussion questions to the participants, facilitation of a break-out session, coordination of logistics, and preparation of a report of the workshop findings and recommendations.

For the U.S. EPA's Office of Water, Office of Science and Technology, Health and Ecological Criteria Division, conducted a critical evaluation and comparison of the methods used to conduct aquatic ecological risk assessments by the Office of Water and the Office of Pesticide Programs, using atrazine as a case study.

## Advisory Appointments

Working group, Revision of OECD No. 23, Guidance Document on Aqueous-Phase Aquatic Toxicity Testing of Difficult Chemicals (2017-2018)

Co-chair, "Improving the usability of ecotoxicology in regulatory decision-making," SETAC Pellston Workshop™, Aug 30-Sept 4, 2015

Steering committee, "Pharmaceuticals and Personal Care Products in the Environment: What are the Big Questions?", workshop sponsored by SETAC and Health Canada, April 10-12, 2011

Invited participant, "Veterinary Medicines in the Environment," SETAC Pellston Workshop, February 2006

Invited participant, " Re-evaluation of the State of the Science for Water Quality Criteria Development," SETAC Pellston Workshop, June 1998

Invited expert, OECD Working Group, Guideline 201, Freshwater Alga and Cyanobacteria, Growth Inhibition Test, 1998-2004

Invited expert, OECD Working Group, Guideline 221, *Lemna* Growth Inhibition Test, 1998-2004

Ad Hoc Expert, FIFRA Science Advisory Panel, U.S. EPA, 1997

## Editorships & Editorial Review Boards

Environmental Toxicology & Chemistry, Editorial Board, 2000-2003

## Peer Reviews

Environmental Toxicology & Chemistry

Integrated Environmental Assessment & Management

Bulletin of Environmental Contamination and Toxicology

Human and Ecological Risk Assessment