

Karen Howard (née Evans), Ph.D.
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www.exponent.com**Professional Profile**

Dr. Karen Howard is a Senior Environmental Chemist in Exponent's Health Sciences Center for Chemical Registration and Food Safety. Dr. Howard has 20 years experience in the field of environmental chemistry working for academic, governmental, and non-governmental organizations, and has extensive involvement in EU biocide regulation, dossier preparation, and risk assessment. She has a comprehensive working knowledge of EU Regulatory evaluation procedures and the evaluation/interpretation of studies on: behaviour of chemicals in soil, water and air; physico-chemical properties; analytical methods; and pesticide metabolism and residues in crops, animals and the environment; including relevant guidelines and EC Directives (biocides, pesticides, industrial chemicals). She is experienced in carrying out environmental exposure assessments, in the design of bespoke environmental exposure scenarios and in the design and implementation of a wide range of environmental fate and assessment projects, together with data interpretation and project management. She also has expert practical knowledge of a wide range of analytical techniques.

Prior to joining Exponent, Dr. Howard worked at the Pesticide Safety Directorate (PSD), the UK regulatory authority on pesticides. She represented the UK at ECCO Expert Group meetings and wrote harmonized EU guidance papers for Industry on methods of analysis requirements under EU Directive 91/414. She was responsible for evaluating data, conducting consumer risk assessments, R&D project management and providing technical advice to a range of bodies including the Pesticide Residues Committee (monitoring), the Wildlife Incident Investigation Scheme, agrochemical companies, growers and contractors. She also contributed to international and national policy.

Dr. Howard also worked as a Higher Scientific Officer at the Plymouth Marine Laboratory research institute on investigations into the behaviour and fate of organic pollutants in UK estuaries. She was responsible for and managed field-based studies, analytical method development, laboratory-based physico-chemical investigations, estuarine modelling, and data interpretation. Prior to this, Dr Howard held a number of environmental and analytical chemistry positions with the University of Derby (PhD), the Ministry of Agriculture, Fisheries and Food (now Cefas), Welsh Water and Plymouth University, involving interdisciplinary research into polycyclic aromatic hydrocarbons in riverine systems and analytical determination of paralytic shellfish poisons and a range of environmental contaminants in estuarine and freshwater environments.

Academic Credentials and Professional Honors

Ph.D., University of Derby, 1990

B.Sc., Environmental Science (Upper Second Class), Plymouth University (*honours*), 1985TEC/HD, Applied Biology, Plymouth University (*with distinction*), 1983

Publications

Howard K, Hanel R, Siebers J. Technical material and preparations: Guidance for generating and reporting methods of analysis in support of pre- and post-registration data requirements for Annex II (part A, section 4) and Annex III (part A, section 5) of Directive 91/414. SANCO/3030/99 - rev 4. Official Journal 11/07/00, 2000.

Howard K, Hanel R, Siebers J. Residues: Guidance for generating and reporting methods of analysis in support of pre-registration data requirements for Annex II (part A, section 4) and Annex III (part A, section 5) of Directive 91/414. SANCO/3029/99 - rev 4. Official Journal 11/07/00. 2000.

Hanel R, Siebers R, Howard K. Guidance document on residue analytical methods. SANCO/825/00 – rev 6. Official Journal 20/06/00. 1998.

Karamfilov VK, Fileman TW, Evans KM, Mantoura RFC. Determination of dimethoate and fenitrothion in estuarine samples by C₁₈ solid phase extraction and high resolution gas chromatography with nitrogen phosphorus detection. *Analytica Chimica Acta* 1996; 335:51–61.

Gallacher S, Evans KM, Blackburn M, Waldock MJ, Birbeck TH. Tissue culture assay for paralytic shellfish poisoning toxins. *New Techniques in Food and Beverage Microbiology. Society for Applied Bacteriology.* 1993.

Ahel M, Evans KM, Fileman TW, Mantoura RFC. Determination of atrazine and simazine in estuarine samples by high resolution gas chromatography and nitrogen-selective detection. *Analytica Chimica Acta* 1992; 268:195–204.

Gill RA, Evans KM, Robotham PWJ, Taylor BM. *In vivo* metabolism and identification of some metabolites of benzo(a)pyrene by the stone loach (*Neomacheilus barbatulus*), the gastropod (*Lymnaea peregra*) and the leech (*Glossiphonia complanata*). *Proceedings, 13th International Symposium on Polynuclear Aromatic Hydrocarbons.* Bordeaux, pp. 1063–1069, 30 Sept-4 Oct. 1991, 1992;

Waldock MJ, Evans KM, Law RJ, Fileman TW. An assessment of the suitability of HPLC techniques for monitoring of PSP and DSP on the east coast of England. *Proceedings, Symposium on Marine Biotoxins,* pp. 137–148, 30–31, Paris, France, January 1991.

Evans KM, Gill RA, Robotham PWJ. The source, composition and flux of polycyclic aromatic hydrocarbons in sediments of the river Derwent, Derbyshire, UK. *Water Air Soil Pollut* 1990; 51:1–12.

Evans KM, Gill RA, Robotham PWJ. The PAH and organic content of sediment particle size fractions. *Wat Air Soil Pollut;* 1990; 51:13–31.

Waite ME, Evans KM, Thain JE, Waldock MJ. Organotin concentrations in the rivers Bure and Tare, Norfolk Broads, England. *Applied Organometallic Chemistry* 1989; 3:383–391.

Ebdon L, Evans KM, Hill SJ. The accumulation of organotins in adult and seed oysters from selected estuaries prior to the introduction of UK regulations governing the use of tributyltin-based anti-fouling paints. *Sci. Total Environ* 1989; 83:63–84.

Ebdon L, Evans KM, Hill SJ. The variation of TBT levels with time in selected estuaries prior to the introduction of regulations governing the use of TBT based anti-fouling paints. *Sci. Total Environ.* 1988; 68:207–233.

Posters

Howard K, Jarvis T, Harris C. A comparison of approaches to modelling in environmental risk assessment (RA) for pesticides and biocides. SETAC Europe 13th Annual Meeting. Hamburg, Germany, 27 April 1–May 2003.

Evans KM, Fileman TW, Mantoura RFC. Solid phase extraction of triazine herbicides from estuarine samples. American Chemical Society Annual Meeting, San Francisco, CA, April 5–10th 1992.

Evans KM, Gill RA, Robotham PWJ. Route of entry, mobilisation and depuration of polycyclic aromatic hydrocarbons (PAH) in some freshwater fish and invertebrates. British Ecological Society (Ecotoxicology), September 1989.

Reports

Evans KM, Fileman TW, Ahel M, Mantoura RFC, Cummins DG. Final Report to the UK National Rivers Authority: Fate of organic micropollutants in estuaries. Triazine herbicides and alkylphenol polyethoxylates. April 1993.

Presentations

Howard KM. Data input into the development of an environmental risk assessment. Informa Life Sciences: Introduction to Risk Assessments for Chemicals & Biocides, Berlin, Germany, September 24, 2007.

Howard KM. Data input into the development of an environmental risk assessment. Informa Life Sciences: Risk Assessments for Chemicals and Biocidal Products, Washington, DC, USA, May 3, 2007.

Howard KM. Data input into the development of an environmental risk assessment – from exposure scenario to the risk assessment. IBC Life Sciences Annual Conference on the Biocidal PRODUCTS Directive, Brussels, Belgium, November 9–10, 2005.

Howard KM, Harris CA, Jarvis TD. A comparison of approaches to probabilistic modelling in environmental and consumer risk assessment for pesticide. Integrating Environmental and Human Health Perspectives in the 21st Century, University of Plymouth, UK, September 16–18, 2002.

Howard KM. Method validation in support of technical material and preparation data requirements. Physicochemical Discussion Group, LGC, Runcorn, UK, January 2000.

Evans KM, Fileman TW, Mantoura RFC. The evaluation of the behaviour of triazine herbicides in UK estuaries. Society of Environmental Toxicology and Chemistry 14th Annual Meeting, Houston, TX, November 1993.

Evans KM, Gill RA, Robotham PWJ. Levels of PAH in freshwater benthic organisms in relation to their trophic level. British Ecological Society, December 1988.

Project Experience

Undertaken complex environmental exposure assessments. Familiar with models relevant to the prediction of concentrations of chemical substances in the environment, including EUSES and the biocide environmental Emission Scenario Documents (EUBEES ESDs). Significant experience in generating bespoke product-specific emission/exposure scenarios.

Written numerous regulatory dossiers of physico-chemical, analytical methodology and environmental fate and behaviour data and conducted environmental exposure modeling and assessment in support of new and existing active ingredients under EU Directive 98/8/EEC (biocides). Successfully constructed scientifically defensible data waiving arguments and environmental exposure modeling through the EU biocides review process.

Written numerous regulatory evaluations (dossiers, monographs, evaluation documents) of (1) physico-chemical and analytical methodology data, (2) environmental fate and behaviour data and (3) metabolism and residue data and conducted environmental exposure assessments and consumer risk assessments in support of new and existing active ingredients under EU Directive 91/414/EEC (pesticides) and the Control of Pesticide Regulations (COPR). Successfully defended data through the EU EPCO (formerly ECCO) process.

Written three harmonised EU guidance papers for Industry on methods of analysis requirements under Directive 91/414.

Managed a number of R&D analytical and environmental fate projects commissioned by the UK pesticide regulatory authority and provided technical advice to the UK Pesticide Residues Committee (monitoring) and UK Wildlife Incident Investigation Scheme.

Project-managed Environment Agency and NERC-commissioned investigations into the behaviour and fate of a variety of agricultural and industrial organic chemicals in UK estuaries, including field-based studies, analytical method development, laboratory-based physico-chemical investigations, estuarine modelling and data interpretation.

Undertaken interdisciplinary-based research into sources and factors affecting PAH distribution in riverine sediments, associated physicochemical interactions, uptake and distribution in biota and subsequent metabolism and depuration.