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Aaron Edgington, Ph.D.

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Professional Profile

Dr. Edgington specializes in assessing effects from exposure to metals, organic compounds, and nanomaterials. For these purposes, he has 10 years of experience in designing, implementing, and evaluating aquatic toxicology testing systems for acute and chronic exposures. Dr. Edgington has evaluated laboratory and field collected data to determine risk of exposure and possible adverse effects form contaminate exposure to freshwater and marine organisms as well as avian and mammal wildlife. He has performed hazard assessments of many products and chemical constituents of products used with in the commercial and retail sector. Dr. Edgington has conducted risk assessments, natural resource damage assessments (NRDA), and mine permitting studies. He has worked with state and federal regulators as well as private sector companies in mining, oil and gas, and chemical industries.

Academic Credentials & Professional Honors

Ph.D., Environmental Toxicology, Clemson University, 2011

B.S., Environmental Science, Western Washington University (WWU), 2004

Prior Experience

Senior Scientist, Exponent, August 2021 – Present

Senior Scientist, Windward Environmental, 2016 – 2021

Senior Scientist, Pacific EcoRisk, 2015 – 2016

Senior Scientist, Exponent, 2014 – 2015

Post doctorate scholar, Oregon State University, 2012 – 2014

Professional Affiliations

Society of Environmental Toxicology and Chemistry

Publications

Ziccardi L.M., Edgington A.J., Hentz K., Kulacki K.J., Kane Driscoll S. 2016. Microplastics as vectors for bioaccumulation of hydrophobic organic chemicals in the marine environment: A state-of-the-science review. Environmental Toxicology and Chemistry. 35(7): 1667-1676.

Edgington A.J., Petersen E.J., Herzing A.A., Rao A., Klaine S.J. 2014. Microscopic Investigation of single-walled carbon nanotube uptake by Daphnia magna. Nanotoxicology. 9(S1): 2-10.

Edgington A.J., Roberts A.P., Taylor L.M., Alloy M.M., Reppert J., Rao A.M., Mao J., Klaine S.J. 2010. The influence of natural organic matter on the toxicity of multiwalled carbon nanotubes. Environmental Toxicology.. 29(11): 2511-2518.

Presentations

Nordtug T, Hansen BH, Hammer KM, Øverjordet IB, Andreassen I, Wold PA, Olsen AJ, Altin D, Stubblefield W, Edgington A. Experimental system for exposure of pelagic fish eggs to crude oil dispersions. Platform presentation, Society of Toxicology and Chemistry North America Annual Meeting, Nashville, TN, 2013.

Finch B, Edgington A, Stroufe M, Subblefield W. Gulf killifish (Fundulus grandis) aquaculture and utility as a toxicological model. Poster presentation, Society of Toxicology and Chemistry North America 3Annual Meeting, Nashville, TN, 2013.

Edgington A, Baldwin W, Bain L, Klaine S. Differential resource gene transcription in carbon nanotube exposed Daphnia magna. Platform presentation. Society of Toxicology and Chemistry North America Annual Meeting, Boston, MA, 2011.

Edgington A, Donohue KB, Stanley JK, Steevens JA, Klaine SJ. Comparison of carbon nanotube and asbestos exposure on the gill and liver histology of fathead minnows. Platform presentation. Society of Toxicology and Chemistry North America Annual Meeting, Boston, MA, 2011.

Edgington AJ, Podila R, Rao A, Klaine SJ. Absorption of functionalized single-walled nanotubes across Daphnia magna gut tract. Platform presentation, Society of Toxicology and Chemistry European Annual Meeting, Basal Switzerland, 2011.

Edgington AJ, Podila R, Rao A, Klaine SJ. Absorption of functionalized single-walled nanotubes across Daphnia magna gut tract. Platform presentation, Society of Toxicology and Chemistry Carolina Annual Meeting, Durham, NC, 2011.

Edgington AJ, Podila R, Rao A, Klaine SJ. Absorption of functionalized single-walled nanotubes across Daphnia magna gut tract. Platform presentation, Society of Toxicology and Chemistry North America Annual Meeting, Portland, OR, 2010.

Edgington A and Klaine SJ. The influence of natural organic matter on the toxicity of fullerenes C60 and C70. Poster presentation, Society of Toxicology and Chemistry North America Annual Meeting, Portland, OR, 2010.

Edgington AJ, Rao A, Reppert J, Roberts A, Alloy M, Taylor L, Klaine SJ. The influence of natural organic matter on the behavior and toxicity of carbon nanomaterials. NanoTox, Clemson, SC, 2010.

Edgington A and Klaine SJ. The influence of natural organic matter on the toxicity of fullerenes C60 and C70. Platform presentation, Society of Toxicology and Chemistry Carolina Annual Meeting, Athens, GA, 2010.

Edgington AJ, Roberts AP, Taylor LM, Alloy M, Rao A, Reppert J, Klaine SJ. The influence of natural organic matter on the behavior and toxicity of carbon nanomaterials. Platform presentation, Society of Toxicology and Chemistry North America Annual Meeting, New Orleans, LA, 2009.

Edgington A and Klaine SJ. The influence of natural organic matter on the fate and effects of carbon nanomaterials. Poster presentation, Society of Toxicology and Chemistry North America Annual Meeting,

Tampa, FL, 2008.

Edgington AJ and Klaine SJ. The influence of natural organic matter on the fate and effects of carbon nanomaterials. Society of Toxicology and Chemistry Carolina Annual Meeting, Morehead City, NC, 2008.

Edgington AJ and Klaine SJ. The influence of natural organic matter on the fate and effects of carbon nanomaterials. Society of Toxicology and Chemistry North America Annual Meeting, Milwaukee, WI, 2007.

Project Experience

- Derived safe drinking water limits for chemicals associated with beverage manufacturing processes and conducted a human health risk assessment using those limits that are relevant to a planned water reuse operation.
- Reviewed endangered species assessments and water quality data as part of litigation support for water use litigation.
- Assessed water quality data, fish and invertebrate abundance data, and national pollution discharge elimination system (NPDES) data as part of litigation support. Litigation pertained to the release of an organic contaminate and involved multiple states and county jurisdictions.
- Conducted environmental risk assessments on multiple compounds related to personal care products. The goal was to provide the client with information necessary to ensure current formulations, and future formulations, of personal care products posed limited risk to the environment during regular use.
- Assessed invertebrate sediment toxicity data as part of a natural resource damage assessment (NRDA) in a riverine system influenced by a dam impoundment. The chemicals of potential concern were metals associated with smelter slag.
- Conducted an evaluation of fish ecology in mountain streams. The evaluation pertained to the potential influence of mine waste effluent on the health of sensitive fish species.
- Conducted statistical analysis on plant toxicity data. Data analysis was associated with requirements for the registration of veterinary drugs.
- Assessed fish ecology data as part of preparing an environmental assessment (EA). Tasks included a literature review of Atlantic salmon return data.
- Conducted environmental risk assessments (ERAs) associated with requirements for mining permit applications. ERAs were associated with predicted metals concentrations in mining operation effluents.
- Evaluation of water temperature data as it relates to water temperature limits for a perennial stream in the arid southwest U.S. The evaluation was part of a triennial review of NPDES permitting and involved predicting water temperature during peak seasonal ambient air temperatures.
- Assessed laboratory produced toxicity data that was part of a NRDA for an oil spill. The project involved photoenhanced toxicity data that was used to derive a predictive model for photoenhanced toxicity of polyaromatic hydrocarbon (PAH) exposure to vertebrates and invertebrates. Toxicity data from single PAH exposures to vertebrates and invertebrates were also used to update the PAH target lipid model for site specific species. My role included designing toxicity test systems, analyzing toxicity data, and assessing the efficacy of both predictive toxicity models.
- Managed multiple client projects to meet their NPDES permitting needs. Tasks included coordinating sampling with clients, analyzing whole effluent toxicity (WET) data, report writing, and communicating results to clients.

Peer Reviews

Environmental Toxicology and Chemistry

Environmental Science and Technology