

## Water Quality and Treatment: A Research Perspective from Atlantic Canada

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Dr. Graham Gagnon is the NSERC / Halifax Water Industrial Research Chair in Water Quality & Treatment in the Faculty of Engineering, Dalhousie University. This research program is a partnership program between NSERC, Halifax Water and several other partners in the water industry: LuminUltra, CBCL Ltd. and CBRM Water. Since its inception the Chair program has provided numerous research opportunities for highly qualified personnel at the undergraduate, MSc and PhD level. The Chair provides students with unique skills and a broad vision which will facilitate their transition into the Canadian workforce, forming the next generation of young professionals in the water industry.

The Chair program provides an integrated research approach that ensures the protection of public health from opportunistic pathogens and chemical by-products while ensuring that the longevity of drinking water infrastructure is achieved. The focus of our research has been divided in three themes:

1. Drinking water treatment plant optimization
  - Characterization of Natural Organic Matter
  - Advanced Water Technologies: Biofiltration, membranes & advanced oxidation
2. Maintaining water quality during distribution; and
  - Corrosion control
  - Disinfection & Disinfection byproducts
3. Maximizing the environmental sustainability of drinking water plant operations.
  - Maximizing water production and minimizing energy consumption
  - Waste management of filter backwash water and clarifier solids