Pulp and paper environmental effects monitoring in Canada: An overview

Environmental effects monitoring (EEM) is a requirement for pulp and paper mills in Canada discharging effluent directly into receiving environments under the Pulp and Paper Effluent Regulations of the Fisheries Act. The objective of the EEM program is to assess effects on fish, fish habitat and the use of fisheries resources by humans, potentially affected by the deposit of mill effluent in aquatic receiving environments. The information provided by the monitoring program will contribute to assessing the adequacy of the regulations. Difficulties encountered in the first round of monitoring led to an extensive science review of key components and resulted in improvement to process, scientific defensibility of the monitoring data and site-specific flexibility of the EEM program. The second cycle of EEM was, overall, markedly more successful than Cycle 1. However, problems were still evident for fish surveys conducted in marine and estuarine environments. The adoption of improved alternative monitoring approaches (e.g., caged bivalves, mesocosms) should alleviate many of these problems. An overview of the EEM program, results to date, alternative monitoring approaches, and research priorities to fill data gaps are presented.
Enhanced visible light photocatalytic activity of AgI/TiO$_2$ composite fabricated by a grinding method

Impact of local climate change on drinking water quality in a distribution system

High performance adsorption of hazardous triphenylmethane dye-crystal violet onto calcinated waste mussel shells

Pharmaceuticals and pesticides in rural community drinking waters of Quebec, Canada – A regional study on the susceptibility to source contamination

Ultrasonic pretreatment for anaerobic digestion of suspended and attached growth sludges
In Canada, Environmental Effects Monitoring (EEM) programs exist within two regulations: the Pulp and Paper Effluent Regulations and the new Metal Mining Effluent Regulations under the Canadian Fisheries Act. EEM provides a biological, effects-based feedback loop to assess the effectiveness of technology-based regulations in protecting receiving environments. The promulgation of the Pulp and Paper Effluent Regulations, in 1992, represented a significant step forward in the Canadian regulatory approach by incorporating directly into a regulation a requirement to assess the effects of effluent di