



New Brunswick  
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Nouveau-Brunswick

## **Backgrounder**

### **A Baseline Assessment of Domestic Well Water Quality in Potential**

#### **Shale Gas Regions of New Brunswick**

The production of oil and natural gas is an activity that generates public and regulatory issues concerning fresh water resources. The recent exploration activities for natural gas in New Brunswick have highlighted the keen interest and concern over potential impacts, if any, to groundwater that serves as the water supply for over 60% of the province's population. In NB, groundwater that is used for human consumption is extracted from 55 municipal well fields and over 100,000 private wells. An important groundwater information requirement that has been identified in areas of shale gas development is the need for characterization of baseline groundwater quality. Baseline data should be collected prior to activities such as gas well drilling and hydraulic fracturing. Having such information can provide the public, regulators, and industry with a better understanding of groundwater quality conditions. The objective of this two-year research project is to collect and report baseline domestic well water quality data in selected regions of New Brunswick. The focus is on groundwater quality parameters that are most relevant to the potential impact on shallow groundwater from unconventional shale gas production.

The study will be based on collecting groundwater samples from over 500 domestic water wells distributed over four regions having a total area of approximately 5200 km<sup>2</sup>. Key water quality parameters will be determined immediately at the time of sample collection, while subsequent laboratory analyses will include: 1) inorganic ions, 2) dissolved gases such as methane, and 3) stable isotopes of methane and water. Because of the potential for seasonal variations in dissolved methane concentrations in domestic well water, a subset of the wells will be chosen for repeated sampling over a period of one year. Results from the project will be provided in an interim progress report to the New Brunswick Energy Institute, followed by a final report. Results will be made publically available on the NBEI website as summary data statistics without identifying the results from individual domestic wells, in order respect privacy concerns.

The University of New Brunswick based project, which will run from April 2014 to April 2016, will involve two research support staff and up to eight summer undergraduate students and intends to include First Nations involvement.



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## ***News Release***

### **New Brunswick Energy Institute Funds Water Flow Study**

**Fredericton, April 1, 2014** – The New Brunswick Energy Institute has partnered with the Canadian Rivers Institute to examine the Environmental Water Flows in New Brunswick. Part of a larger international study, the NBEI funds will be used to assess state-of-the-art approaches as to how much water flow is needed in our streams and rivers to support fish and other aquatic life, and to provide advice on effective environmental flow guidelines for the Province of New Brunswick. The information gathered will have many uses, but will be particularly useful for natural resource development initiatives for which allocations of fresh water are made.

“We believe strongly in the intent of this project and the work done by the Canadian Rivers Institute which is why we are pleased to fund this important research”, said Dr. David Besner, Interim Chair of the New Brunswick Energy Institute. “Water use is a concern to New Brunswickers, particularly when it pertains to natural resource development, therefore we feel that an assessment of flow guidelines in other jurisdictions, and their applicability to New Brunswick will be a valuable resource for many projects and decisions.”

This project will identify how much water is needed in a river to protect the health of aquatic species and to ensure that water extraction for human use is done sustainably. NBEI is funding \$24,000 to examine in detail Environmental Flow Needs (EFN) approaches, policies and regulation in Canada and leading jurisdictions internationally, to recommend preferred options for EFN policy and regulation for New Brunswick. This project will commence in April 2014 and is expected to be completed by September 2014.

"Understanding the role of flows in supporting the freshwater ecosystems is a goal of the recently released Science Plan of the Canadian Rivers Institute and we are very happy to have a chance to partner with the Energy Institute of New Brunswick to bridge our science with energy and water managers and stakeholders", said Dr. David Armanini, Science Director at the Canadian River's Institute. This project is part of a series of water studies that the NBEI will be funding relating to energy development. The NBEI's Scientific Advisory Council selects research projects based on their relevance to New Brunswick's energy future. To date the NBEI has invested over \$550,000 into New Brunswick based water research.

-30 -

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