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TOWN & GOWN ISSUE:
**Celebrating 50 Years of
Our University & Community
Growing Together**

**SPECIAL
EDITION**

BUILDING A FIELD
(AND A COMMUNITY)
THROUGH JAZZ:

**'New Ways to See
(and Hear) the World'**

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**GUELPH SUSTAINABLE
SOLUTIONS GROUP**

'..the largest bedrock-focused academic, university-based groundwater research group in Canada..'



THE G360 CENTRE FOR APPLIED GROUNDWATER RESEARCH: *Looking Out For What's Most Important*

G360 Director Dr. Beth Parker near the Eramosa River

by Chris Tiessen (adapted from material provided by Beth Parker & the G360 team)

Groundwater yields immense importance as a water source for people everywhere. Indeed, more than half of the global population use it as their main source of drinking water. Moreover, groundwater is also important to agriculture, industry and commerce – and is in fact the most extracted raw material in the world.

Understandably, contamination of this essential resource is a big problem. Human, animal and industrial waste can enter a site's bedrock and the water reserves it contains, creating a pressing problem that affects communities worldwide. In developing countries, 80 per cent of diseases are believed to be caused by contaminated drinking water often obtained from natural springs and bedrock wells. Meanwhile, in the United States alone more than 300,000 groundwater sites are believed to be contaminated.

Ultimately, the solution to this problem is to control the contamination of a site, and then remediate it so that it is suitable for future human and ecological uses. Although this sounds like a straightforward process, it is actually complex. For while the state of the science is advanced in some areas of groundwater contamination,

the information available on the migration and fate of contaminants within low-permeability layers or aquitards and fractured rocks is much weaker. And because these features are more complex and expensive to drill, gaining a full understanding of them is difficult work.

One team of researchers is tackling the challenge. The **G360 Centre for Applied Groundwater Research** at the **University of Guelph** is the largest bedrock-focused academic, university-based groundwater research group in Canada. Under the leadership of Director Dr. Beth Parker, this 50-person team conducts research at contaminated bedrock sites in Canada and beyond. The emphasis of this work is on the field-focused investigation of groundwater contamination in bedrock, and the role of layers of low-permeability geologic strata in the protection of underlying groundwater in aquifers.

Fieldwork takes place at two bedrock field research facilities established on the **University** campus and nearby, as well as at numerous other sites across North America and beyond. One important location is a local property close to

the **Eramosa River** owned by **Scouts Canada**. Here, surface water interacts with groundwater over a boundary of fractured rock, and provides vital information about how contaminants are accumulated and discharged, while the site provides for community and youth outreach opportunities. This site is complemented by the monitoring network throughout the City and the **Bedrock Aquifer Field Facility** at **The Arboretum** where a cluster of bedrock boreholes will support collaborative Canadian and international research, technology innovation, and student and professional training.

The research being conducted at the **G360 Centre** has value not only in the safeguarding of clean water supplies worldwide, but also in industries such as oil and gas extraction, mining and quarrying. Although water can frequently seem like a ubiquitous resource, it nonetheless requires proper management and effective care to maintain it.

The knowledge required to act responsibly is being generated today in Guelph.