NEWS RELEASE

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Laurier's W. Garfield Weston Fellow to research Arctic lakes

WATERLOO – Andrew Medeiros of Wilfrid Laurier University has been awarded a W. Garfield Weston Postdoctoral Fellowship to conduct research on Arctic lakes to understand how climate change is affecting the region. The fellowship, awarded through the Association of Canadian Universities for Northern Studies, is valued at $50,000.

Medeiros is looking at both the water chemistry and biology of the lakes. On the biological side, he looks at what species of insects (who live in lakes during their larval stage) inhabit a lake as indicators of change in a system. Most of the insects survive at narrow temperature thresholds – if it's too hot or too cold they will die – and some are simply outcompeted by species that migrate from the south as the lakes warm.

"I found the diversity of insect species in lakes was determined primarily by temperature, but there is also a secondary relationship with nitrogen – which indicates the amount of nutrients in a lake," said Medeiros. "If there are more available nutrients, even if lake is cold, I found diverse communities too."

This discovery led Medeiros to work with Laurier Associate Professor Brent Wolfe, who studies the geochemistry of Canada's northern lakes. Combining Wolfe's research with the biological aspect of his research, Medeiros can learn more about what governs the distribution of these species: whether or not climate temperature has a specific role in their life histories or if nitrogen and nutrients are also playing an important role.

Medeiros is focusing on the southern end of Nunavut's Kivalliq Region, an area about the size of Sweden that has warmed about 2 to 2½ degrees C over the past century.

"This is a huge area we know nothing about," he said. "These are environmental changes in an area that historically – for thousands upon thousands of years – has been very cold, and now it's warming up. We need to know how these systems will change under continued warming and continued nutrient additions.

"This doesn't mean there are just going to be more bugs – they are like the canary in the birdcage metaphor. These changes are a precursor to things like tree-line movement, permafrost degradation, amplification of carbon dioxide and methane (greenhouse gases), and biological system turnover – such as whether or not there are fish species in these lakes."

About the award
The W. Garfield Weston Foundation is sponsoring postdoctoral fellowships in northern natural science research. Selection is made upon the basis of academic excellence or exceptional promise and demonstrated commitment to the North, with the requirement that students have a clearly defined research project that includes a significant northern fieldwork component and will result in evidence of potential for dissemination of research results. Candidates will have the opportunity for a one-year renewal.

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