



Chris Jensen is shown by the rain garden outside the Atrium building at Yates and Blanshard streets. This is one type of low impact development technique being implemented in urban areas.

UNIVERSITY OF VICTORIA

Rainy-day stormwater solutions

UVIC STUDENT FINDS NATURAL SOLUTIONS THAT HELP BUILDERS AND MUNICIPALITIES REDUCE STORMWATER MANAGEMENT COSTS

After years studying rain gardens, green roofs and climate change, UVic geography master's student Chris Jensen graduated this month. And when it rains, local municipalities can thank him for mapping practical solutions that reduce the costs of stormwater management — a growing concern in many areas of B.C.

As a master's student, Jensen began a project on how to manage rainwater where it falls, rather than directing it into storm water systems buried under city streets. Green roofs, rain gardens and permeable paving materials are some of the means he evaluated to mitigate the impacts of more extreme rainfall brought on by climate change.

"If rainwater is absorbed where it falls, there'll be less risk of overloading our storm water systems and less flood damage to homes, businesses and sensitive aquatic habitats," he says. "It's a gentler, more natural way of managing rainfall."

Jensen conducted his research study in the heavily urbanized Bowker Creek watershed, which extends through Victoria, Oak Bay and Saanich. "Bowker Creek is an ideal case study," he says. "About 50 per cent of its surface is impermeable due to roads, buildings and pavement, and a study led by the Capital Regional District predicts that there will be increased flooding there in the future."

Funded in part by a graduate fellowship from the UVic-led Pacific Institute for Climate Solutions, Jensen used sophisticated computer models to assess the ability of various low-impact development strategies to cope with rainwater.

Low-impact development strategies include permeable paving

materials, green roofs and rain gardens. "The idea is that if we can use some combination of these," says Jensen, "we can reduce flooding without expensive upgrades to the existing drainage infrastructure."

Jensen has been involved with the Friends of Bowker Creek Society since 2001. Throughout his master's degree he worked with municipal officials, the UVic-based Pacific Climate Impacts Consortium, engineering consultants and provincial staff to outline the regulatory, policy and technical challenges of low-impact development.

"Five years ago most municipal project funding applications did not address climate change in their proposals," says Jensen. "Now projects list low-impact solutions, such as rain gardens, in their project plans."

Jensen is pleased to see the shift from "paving the watershed" to "clean streams in urban areas" over a remarkably short amount of time.

As an employee with the B.C. Ministry of Community, Sport and Cultural Development, Jensen also develops tools to assist homeowners and municipalities with planning for climate change. The Water Balance Model (bc.waterbalance.ca) is one such tool, allowing builders, planners and homeowners to assess how to plan for rainwater runoff and reduce the risk of increased flooding. Jensen's research will also be highlighted in a soon-to-be released guide for local governments.

"The municipalities I work with are positive about improving watershed health and adapting to a changing climate," says Jensen. "Climate change is on everyone's radar and governments realize communities need to prepare for more extreme rainfall and reduce vulnerabilities."