



Walker

DIANA NETHERCOTT

# Weathering a sea of change

*The effects of climate change are all too real for residents of the Queen Charlotte Islands*

## EDGEwise

Ian Walker is a co-lead author of the BC chapter of the upcoming Natural Resources Canada assessment of climate change impacts and adaptations, to be released this fall. It discusses current and future risks and opportunities that climate change presents to Canada.

In addition to Walker's research on Haida Gwaii, he studies wind processes in coastal and semi-arid environments across North America.

Walker's research is funded by the Natural Sciences and Engineering Research Council, the Climate Change Impacts and Adaptation Program of Natural Resources Canada, and the Canada Foundation for Innovation.

UVic researchers were awarded more than \$82 million in external research grants and contracts in 2005/06, up nearly 150 per cent since 2001/02.

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Tracherous seas, tempest-force winds, transportation delays, and power outages—these are common inconveniences for residents of Canada's remote coastal communities. But what will happen as global warming causes more extreme changes and these challenges become a threat to coastal livelihoods and landscapes?

University of Victoria geographer Ian Walker is wrapping up a three-year study on the impacts of climate change in northern Haida Gwaii (also known as the Queen Charlotte Islands) and how its residents are adapting to change.

"There are a lot of strengths in coastal resource-dependent communities that can be built on in the face of climate change, but there are also some inescapable vulnerabilities," says Walker, who studies coastal erosion and sand dune systems across North America.

Meshing modern earth science techniques with community-based social science methods such as community mapping, workshops and door-to-door surveys, the study is a first step toward solutions for dealing with the environmental and socio-economic implications of climate change.

"The study's findings are telling of the strengths and the pressures that are facing a lot of Canada's

coastal communities, whether they're on the Pacific, Arctic or Atlantic coasts," says Walker.

Some of the results, he says, are quite alarming. The team found that sea levels in Haida Gwaii are rising at a rate of 16 cm per century—twice as fast as sea levels around Victoria. During extreme storms, sea levels rise at more than twice this rate.

Walker and his team also learned that the coastline is eroding at a rate of one to three metres per year. "This will bring a variety of hazards," he says. "For example, the coastal highway will see increased flooding and erosion in the next 10 to 20 years."

How the Haida First Nations people perceive these changes to their landscape and how they have adapted to past changes are important considerations in the study.

"This kind of community-based research demands a great deal of time and preparation but in the end there is no better way to collect locally relevant data," says Walker, who spent two years in the area establishing ties with community members before beginning the study.

"You can't just jet in and be an academic tourist. We strived to ensure our methods were culturally sensitive and locally relevant."

Through more than 200 door-to-door surveys

and community interviews, the team gathered information about exposures to environmental and social changes—including a large number of young people leaving the island, roadways flooding, ferry delays, and frequent power outages—and how they have adapted.

The team also learned about the many strengths of the Haida and local residents and how these have helped them cope with change. Some of these strengths include strong social networks to help share burdens or resources, income diversification from arts and crafts and tourism to help supplement seasonal incomes from fishing, and a high level of preparedness due to experience with past storms.

"When we study a community's response to natural hazards we typically examine traditional indicators such as levels of education, gender, household income, and access to information technology," says Walker.

"Communities that lack those things are traditionally viewed as less adaptable or more vulnerable than communities that have those things. However, if you take that approach in remote coastal communities you're missing a lot of important local factors and considerations."



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