Greetings: And why a newsletter?

Welcome to the first issue of Island Geoscience! As the subtitle suggests, this newsletter seeks to keep you informed of recent geoscience issues related to water, land and air protection on Vancouver Island, and coastal British Columbia. In a practical sense, this may include research and technology developed elsewhere, but still relevant to coastal BC.

I have two main goals in producing this newsletter.

1. The first is to provide government staff who are not geoscientists or engineers, with an increased knowledge and understanding of the physical landscape and how it is relevant to more familiar concepts like ecosystems, sustainability, species and biodiversity.

2. The second is to keep engineers and geoscientists external to government, ‘in the loop’ with current developments in geoscience in the coastal region of WLAP.

There’s already a lot to fill the space, and I will try to spread it out over the year. If you have questions about anything within this newsletter, please contact me at:

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If you have recent work that seems to fit the overall theme of this newsletter, let me know and I’d probably be happy to include it.

We’re all inundated with Email. If you are getting this newsletter and do not want it, please send me an Email at the above address and let me know. I will take you off the list. On the other hand, if you know someone who would like to be on it, again, please let me know.

Sincerely,

Rick.

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Geomorphology – a definition:

Geomorphology is the study of the earth’s surface, specifically the landforms and the landform processes, their origins and composition, and predictions about their future form and behaviour. Applied geomorphology uses the knowledge and techniques to provide or assist in solutions to planning, resource, engineering, conservation, or environmental problems.

Geomorphology is important not only to understand the processes at work at a moment in time, but to understand the magnitude-frequency relationships inherent in the landscape. How often will this site flood? What is the likelihood of a landslide following this activity? How long would this beach take to recover from a particular use? How long before the sand dunes take over this portion of the island? Understanding magnitude and frequency characteristics of the geomorphological processes is a fundamental part of Risk Analysis.

Some Current Projects:

Shoreline erosion assessments for small lakes with controlled outlets.
Several smaller Vancouver Island lakes have controlled outlets, and consequently rapid increases in water levels following large winter storms. Current and potential lakeshore landowners face a variety of erosion problems as a result, ranging from relatively low levels of erosion, to severe erosion including loss of property and threats to infrastructure.

Figure 1. Erosion on the shoreline of Horne Lake (note that there is a house in the background).

As landowners construct protective measures they may destroy much of the natural habitat and landscape that makes the lake appealing in the first place, and substantially impact the foreshore. Lakeshore protection, however, is typically not a one size fits all solution. Erosion hazard varies substantially around the lake based on several factors including slope, material type, cohesion/compaction, and wind exposure among other things. Along with Pete Law, an Ecosystems Biologist for the region, we are developing a hazard mapping scheme and an erosion protection toolbox that will help landowners determine an appropriate level of erosion protection, while supporting the biological integrity of the lake. A preliminary product should be available in the late fall.

Geomorphology Vancouver Island

Late in 2002, we began the ambitious task of mapping the geomorphology of Vancouver Island. The goal was to map and characterize, at an overview level, the dominant geomorphological landforms and processes on Vancouver Island, and to link these to known ecosystems information thereby providing an assessment of long term viability and vulnerability of those ecosystems. The first stage, that is to say, the geomorphological mapping is effectively complete. Maps will be coming on-line to government employees (connected to i-Map) at the end of October, and should be available to the public on the Community Mapping Network (http://www.shim.bc.ca/) at about the same time.

The current nine coverages are: Bedrock Geology, Surficial Geology, Coastal Geomorphology, Fluvial Processes, Gully processes and potential, Karst Potential, Snow Avalanches and potential, Wetlands, and Mass Wasting potential. Some coverages are simply amalgams of available digital information (Bedrock Geology and Wetlands for example). Others are the result of considerable analysis (Mass Wasting and Fluvial Processes for example).

Finished mapping is complete at two scales 1:400,000 and 1:250,000. The former contains Vancouver Island on a single E-sized map sheet, the latter on two E-sized sheets. The data itself is typically better than 1:100,000 scale.

We are currently exploring strategies for the second stage of the project that links these maps to known ecosystem information.

Geoscape Nanaimo!

Organized by Maggie McColl at Malaspina University/College and with federal support and contributions from local geoscientists, Geoscape Nanaimo is expected to be released this fall. This wall sized poster and related web-site tells the geological story of the mid-Vancouver Island area through detailed thematic panels. It follows the path of highly successful geoscape posters of other Canadian cities; a path that began in Vancouver. See the link for the main Geoscape web-site:

http://geoscape.nrcan.gc.ca/home/index_e.asp

Recent research:

Recent publications:

Some relevant previous publications:


Next Issue:

We’ll look at which locations on Vancouver Island are susceptible to riparian and floodplain disturbance, and compare those to locations that provide potential long term sediment sources.

Until then!

R.

Editor’s note: If you have an article or research paper that you would like to see here next time, please let me know at Email above.