

Judges and hydrologists, *Flying Shingle*, p.3, 33(22), December 2006

Dear editor

Given the anisotropic, discontinuous, heterogeneity of Gabriola's underground terrain (as a professional hydrologist might say), it's no simple matter to figure out what happens to water trickling down through the fissures in the bedrock beneath our feet. Most of the theoretical concepts in standard hydrology are based on the assumptions that the water-bearing rock is homogeneous, continuous, saturated, and unlimited in extent. None of these assumptions are valid on Gabriola.

Some of our aquifers are in some sort of hydrostatic equilibrium with the ocean, but others are perched aquifers, depending for their existence on aquitards of shale, especially shale with interbeds of siltstone or interspersed with fine-grained sandstone dykes and sills; compacted glacial till; accumulations of clay from heavily weathered sandstone or mudrock; or mylonitic fractures. In areas of complex geology like ours, the concepts of "a watertable", "zones of influence", "confined water", "unconfined water", and others are of limited usefulness. They are, as it says in one of my hydrology books, "more of a theoretical concept than a physical reality".

What then does one do if one wants to pump millions of litres of water from an aquifer and find out the effect of doing this on wells that use that same aquifer? There is, I think, only one practical answer. One pumps millions of litres of water from said aquifer and one carefully measures what happens with automatic data logging equipment hooked to a computer able to do the requisite cross-correlations. Do the tests and find out, which, as I understand it, is precisely what the Islands Trust Temporary Usage Permits encourages us to do. What does one not do? What one does not do, I would submit, is consult lawyers and ask judges. They haven't a clue and asking them is a complete waste of time and money.

Sincerely

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