

COMMENTARY

Perspective on Protecting Drinking Water Sources and Public Health

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Source water protection is indeed a necessary component of a multi-barrier strategy for delivering safe and potable drinking water to the public. However, it is far from being a sufficient strategy and the experience of two of British Columbia's largest water systems provides a useful perspective on the expectations of what can reasonably be delivered through protecting water sheds.

Both the Greater Vancouver and the Greater Victoria areas, which provide water for over two million of the province's total population of approximately four million, have protected watersheds, with virtually no anthropogenic activities occurring within them. Despite this, and despite good disinfection practices, both of the authorities responsible for delivering safe water have over the past few years and at the urging of local medical health officers (who also support watershed protection) committed to improved treatment including water filtration and additional state-of-the-art ultra-violet disinfection.

WHY HAVE THEY DONE THIS?

Quite simply, while human activity can severely compromise raw water quality in a variety of ways, the lack of human activity in no way guarantees pristine water. The watersheds of B.C. are home

to a variety of mammalian species that are capable of harbouring and shedding disease, producing organisms such as *Giardia*, *Cryptosporidium* and *Toxoplasma gondii*, all of which have been implicated in human illness and waterborne outbreaks in B.C. and all of which are resistant to standard disinfection practices (see Provincial Health Officers Annual Report 2000: *Drinking Water Quality in British Columbia: The Public Health Perspective*). (While wild mammals and birds can also contaminate water sources with *Campylobacter* and *Salmonella*, these pathogens would normally be removed through standard disinfection practices.)

For example, in 1995, a screening program showed that of 3,800 exposed pregnant or newly delivered women, at least 100 were infected during a waterborne *Toxoplasmosis* outbreak in Victoria that was subsequently linked to cougars or feral house cats in the watershed. *Giardia* cysts are regularly detected in Vancouver's water supply, especially during periods of turbidity following heavy rains.

Since the elimination of wildlife from B.C.'s watersheds is neither feasible nor desirable, we should temper our expectations as to the benefits that watershed protection measures can reasonably deliver. Watershed protection will likely not remove requirements

for additional measures such as filtration, ozonation and UV disinfection. Watershed protection will, however, contribute to the sustainability of certain watersheds. Watershed protection can be helpful in reducing the risk of chemical contamination from human activity, and preventing the degradation of raw water will assist in keeping treatment costs from escalating. In addition, the challenges around balancing the many and competing uses to which a substantial proportion of B.C.'s watersheds are presently put, has great potential for public discourse around and clarification of, potentially different underlying community value systems.

About the Author

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