

Slow melt of heavy snow better for the environment

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Lesley Warren, associate professor in the Department of Geography & Earth Sciences.

Water is on the minds of many Canadians at the moment, and not just because this Saturday is World Water Day. The record level accumulation of snow laden with imported moisture brought up from the Gulf of Mexico has resulted in snow packed with water: This kind of snow takes longer to melt than the usual lake effect, dry, fluffy snow typically seen around southern Ontario.

This year's melt has so far occurred gradually, which is good news for people worried about flooding, and for the environment, says Lesley Warren, associate professor in the School of Geography & Earth Sciences.

"A spike in temperature can cause the snow to melt quickly, and that in turn means that not only is there greater risk for flooding, but a larger spike in contaminants being released into our waters and streams, which has a greater toxic effect than when contaminants are introduced more gradually in a slower melt," says Warren. "Snow contains toxins such as heavy metals, polychlorinated biphenyls (PCBs) and brominated fire retardants (BFRs) as well as high levels of road salt in urban areas."

If runoff coincides with ground thaws, contaminants can also make it into groundwater supplies, she adds, impacting aquatic life as well as humans through the consumption of fish. Further degraded water quality is linked to increasingly drug-resistant bacteria and the incidence of pathogens in water supplies.

Warren says the projected volume of water associated with this year's record snow levels will help water levels recover in the Great Lakes from the below-average levels observed in the last few years, though she cautions that it will take a few more winters like the one Ontario experienced this year to raise levels significantly in Lake Superior.

"Superior is the canary in a coal mine for the Great Lakes when it comes to water levels," she says. "This year's snow accumulation is forecasted to raise Superior's water levels somewhere between 15 and 30 cm, which is still 45 to 50 cm below average."

Source: McMaster University

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