

Treated sewage effluent still poses threat

By [Judie Steeves - Kelowna Capital News](#)

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After three years of ongoing scientific investigation, Jeff Curtis, who leads the Okanagan Estrogen Project, says indications are that wastewater from sewage treatment plants should be ‘polished’ with a constructed wetland or through infiltration before being released into an aquatic environment.

Curtis reported on the project to delegates at an international water science forum in Osoyoos this week, noting that the project involved testing receiving waters from the Vernon, Kelowna and Penticton wastewater treatment plants.

He said levels of estrogenic compounds in the Okanagan River, where the outfall of the Penticton plant is located, are at a level that should be very carefully watched.

His concern is that very small levels of estrogens or other endocrine disruptors can have adverse impacts on aquatic organisms.

Sexual abnormalities that can prevent normal breeding of fish and other aquatic species have been shown to result from even low levels of pharmaceuticals in waterways.

Results from the Vernon plant, where wastewater goes into the MacKay reservoir before being used for spray irrigation showed that no further polishing occurred in the reservoir, but after spray irrigation, tests of the tail waters showed it was better at reducing quantities of pharmaceuticals than the other two systems.

The highest levels of estrogens were found in treated waters from the Kelowna plant, but once released into Okanagan Lake, they were virtually undetectable, because of the amount of dilution in the large lake, he reported.

“Wherever there are large populations, such substances concentrate, especially where there is a low water supply and less dilution,” he said.

Curtis is a limnologist and head of the Chemistry and Earth and Environmental Sciences

department at UBC-O.

He noted that although we have advanced wastewater treatment plants, such compounds as endocrine disruptors, metabolic disruptors or other residues from pharmaceuticals are not normally removed in treatment plants. “There’s an explosive rate of use of drugs; an increase of 25 per cent in a decade.

In any two-week period, 60 per cent of the population will use pharmaceuticals,” he reported.

“So, we’re introducing a range of bioactive substances into the environment,” he added.

He called them emerging contaminants.

The research continues, but Curtis said he is hopeful the information collected will be used in treatment of wastewater in the valley and in determining how the resulting treated effluent is released into the environment.

See Trail Mix column on A16.

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