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# Estrogen pollution content in OK Lake undetectable

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

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Dilution and degradation are on our side when it comes to estrogen disrupting compounds (EDCs) causing the collapse of fish populations in the Okanagan.

Those are the initial results of research into the concentration of such compounds entering waters in the Okanagan Basin from wastewater treatment plants in the valley.

The work was conducted by Jeff Curtis, associate professor of Earth and Environmental Sciences at UBC Okanagan, and graduate student Tricia Brett.

They reported to the Okanagan Basin Water Board Tuesday, one of the bodies which agreed to fund the research, and the group that instigated the work.

In the first two years of research, they found the levels of EDCs in Okanagan Lake were undetectable, but it's a different matter in the Okanagan River channel, where Penticton's treatment plant discharges.

Kelowna's plant discharges into Okanagan Lake in a deep water outlet, while Vernon's is discharged into the MacKay Reservoir, which supplies spray irrigation for nearby land, before the effluent filters into Okanagan Lake.

Samples were taken of both treated effluent prior to its discharge and of receiving waters, and Curtis said they found that the Okanagan River is the only place to watch, particularly during low flows.

It was a result, he said, that wasn't surprising, because of the high dilution rate possible in Okanagan Lake, by comparison, and the longer time available for gradual degradation of EDCs

in the lake.

There have been no studies yet on degradation of EDCs, so their work on that will contribute to the global body of information about them.

Estrogens are an emerging contaminant, said Curtis, and one that wastewater treatment plants are not yet designed to remove.

He said there's a lot of uncertainty about the possible impacts on fish in the Okanagan River channel because it could take years to reveal them, and also there's a hazy connection between fish health and the level of EDCs in the river.

"Fish are good 'canaries' because they can't live in water with more than five nanograms (parts per trillion) per litre of EDCs without a total collapse of the fish species," commented Curtis.

Brett explained that higher levels cause impacts such as ovaries and reduced testicle size in male fish.

It's not known at what levels they could impact humans.

EDCs come from prescription medications, after they are ingested by people, from industrial surfactants, and from pesticides as well as plasticizers.

Of particular concern in the Okanagan basin is the fact that there is a 60-year residency time for water in Okanagan Lake, so such compounds can accumulate if they don't break down.

Next, Curtis and Brett intend to look at how they break down in treatment plant receiving waters and how long it takes for them to be degraded.

They also plan to do more investigation into just where the plume for the deep water outfall for Kelowna's plant is, in order to measure EDCs directly at that point.

The effect of the seasons on EDC level in wastewater and receiving water will also be studied.

The work will continue during the coming year.

Funding also comes from Health Canada, the Okanagan Indian Band, Interior Health, and the ministry of environment.

Curtis had high praise for the OBWB for instigating the study and continuing to support

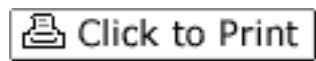
research into EDCs.

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