

Detection and Tracking of Estrogenic and Toxic Substances in the Quinnipiac River

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The Quinnipiac River was tested for the detection of estrogenic substances and those that are toxic to eukaryotic cells to determine if there is a seasonal nature to their input into the river and to track sources of the contamination. 1-liter water samples were collected from 6 different river sites located in North Haven, New Haven, Meriden, Southington, Plainville, and Plantsville Connecticut. The water samples were kept on ice and then filtered to remove sand or large visible compounds. Solid-phase extraction of the samples were performed by following a modified version of the EPA method 1694. The elute from the filter was dried using a nitrogen evaporator and resuspended in 1-ml deionized water. The samples were stored in a -20 degrees Celsius freezer. β -Estradiol was used as a control for pure estrogen. It was diluted with deionized water and exposed to genetically engineered *Saccharomyces Cerevisiae*. The β -estradiol and yeast were incubated for 3-4 hours and was analyzed for bioluminescence. A standard curve of known concentrations was established and the yeast that detected estrogen most efficiently was isolated and grown. The standard curve showed the functionality of the 2015 BYLES that was tested on the 28th of June. The yeast was proved to be able to emit bioluminescence in the presence of estrogen. These results allow further application of the yeast on the samples that were collected during the 2-month interval. The data will lead to the determination of sources of contamination in the river.

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Bio:

My name is Gabrielle Montlouis and I am a senior here at the university. My major is Biology with a pre-medical concentration. I am the founder and president of a growing recognized student organization named the Liturgical Praise Dance Team and Mime. I am also involved with other programs and clubs on campus such as the Honors program, Rotaract club, Caribbean Student Association, and Black Student Union. I have conducted summer research with the Surf program and am currently extending my research into my honor thesis. My goal in life is to be an O.B.G.Y.N practicing osteopathic medicine.

