

**ESTROGENS IN STREAMS ASSOCIATED WITH AN “ORGANIC” CONCENTRATED
ANIMAL FEEDING OPERATION IN UPSTATE NEW YORK**

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ABSTRACT: Water samples are taken from three streams on a concentrated animal feed operation (CAFO) site located in the northwest part of the Catskill/Delaware watersheds in upstate New York. The CAFO has about 1,000 dairy cows confined in a few barns, two concrete waste storage lagoons, and about 3,200 acres of agriculture land that receives all the manure generated from the CAFO. This CAFO is certified as “organic”, thus growth promoters are not administrated. Measurements of hormones at such a site could provide a baseline for comparison with hormones at traditional CAFO sites. Estrogens (17alpha-estradiol (alpha E2), 17 beta-estradiol (beta E2), estriol (E3), and estrone (E1)) were monitored using gas chromatography/mass spectrometry under negative chemical ionization mode. Spike recoveries using deuterium-labeled beta E2 were near 100%. Recovered estrogens ranged from ~10 pg/L to ~300 pg/L during the 2006 winter season. Downstream samples consistently had higher estrogen concentrations than samples from the two upstream tributaries. Nitrate concentrations in the samples followed similar trends, inferring the influence of the applied manure. Many of these estrogen concentrations were on the same order of magnitude as those observed from the nearby stretch of the West Branch of Delaware River immediately below a wastewater treatment plant. Water samples are being taken on monthly basis throughout the year to observe possible temporal changes.

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