EPHT Project Update; Water Contaminants in Southwestern Pennsylvania Rivers

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Review Article-Environmental Concentrations of Pharmaceutical Estrogens and Xenoestrogens in Surface Water: Implications for Wildlife and Human Exposure, Wright –Walters, M. and Volz, C.D., Expected Release Date 9/30/08

Ternes et. al., 2004. Germany	Estrogenicity as E2 equivalents	Estrogenic activity was detected in the effluents of both STPs with values of 0.242 +/- 0.038 nM (65.96 +/- 10.4 ng/l) and 0.125 +/- 0.026 nM E(2)-EQs (34.1 +/- 7.18 ng/l) at STP 1 and 2, respectively	STP effluents River water	Determine estrogenicity of solid phase-extracted water samples from two municipal sewage treatment plant effluents and river Rhine water using the yeast estrogen screen	In river Rhine water, estrogenic activity was lower, however, displaying significant differences between the left and right bank of the river.
Nacada et.al.,2004. Japan	NP, BPA, E1, E2	average concentrations of nonylphenol, bisphenol A, estrone (E1), and 17β-estradiol (E2) were 564 127, 27 19, 33 11, and 4.6 3.0 ng/L, respectively.	STP effluent	To identify the dominant contributors to estrogenic activity in environmental waters	E1 and E2 were the dominant environmental estrogens in the STP effluent,
Furuichi et al;. 2004. ***Japan***	E1 E2 EE2 BPA NP, OP	E1(17.1-107.6ng/L) E2 (2.6-14.7ng/L) EE2 (<0.2ng/L) BPA(16.5-150ng/L) NP (78-144ng/L) OP(20.7-47.5ng/L)	River water	To quantitatively characterize the substances contributing to estrogenic activity in river water,	E1 & E2 were the major contributors to the estrogenic activity in the Tama River.

The Allegheny River Stewardship Project: A Community-Based Participatory Research Project

Purpose: The Allegheny River Stewardship Project is an effort by UPACE researchers, working together with concerned citizens of the Alle-Kiski Valley river communities, to determine the sources and types of river pollutants by monitoring the levels of heavy metals and estrogenic compounds in fish, surface water and sediment.

Project Status:

•Field Sampling Completed May-August 2008.

•ICP/MS of Water-Sediment Samples for Heavy Metals- 10/15/08.

•ICP/MS of Nitric Acid Digested Channel Catfish for Heavy Metals- 10/15/08.

•Estrogenicity of Shad/ Alewife from Sewage Treatment Area vs Upstream Control- 10/30/08.

•Identification of Specific Pharmaceutical Estrogens and Xenoestrogens in Shad/ Alewife by LC/ICP/MS- 12/1/08

Major Ecological and Potential Human Drinking Water Problem

GRAVEL RIVER MINING

1. Comparison of before mining and 2 hours post mining operations showed significantly higher TSS at all sampling locations downstream (24) of the operation at all depths (1 meter from river button, mid-channel and 1 meter from river surface). Paired samples t-test significance-p= .0001
2. All pre and post mining samples are being analyzed for Hg, As, Se, Cr, Co, Zn, Mn, Fe, and Al by ICP/MS to determine if the operation causes significant elevations of these elements in surface water.
3. Area residents draw their water from bank wells located downstream of this operation and there are community water intakes downstream also.