Apr 16th, 9:00 AM - 10:00 AM

# Endocrine Disrupting Chemicals in Natural Water Sources

Kelly Lingen
*Illinois Wesleyan University*

Stephen Hoffmann, Faculty Advisor
*Illinois Wesleyan University*

Poster Presentation P35

# ENDOCRINE DISRUPTING CHEMICALS IN NATURAL WATER SOURCES

Kelly Lingen and Stephen Hoffmann*
Chemistry Department, Illinois Wesleyan University

Endocrine disrupting chemicals (EDCs) have become an increasing concern. These chemicals may mimic hormones and can disrupt the normal functioning of the endocrine system. If they are present in wastewater, they are often not removed by wastewater treatment processes. Therefore, as wastewater treatment effluent is released to the environment, these compounds may cause adverse affects in wildlife, such as a change of gender in various aquatic species or an increase in sterility. Because they are also seldom removed in drinking water purification, humans may also be affected through exposure to these compounds in drinking water from surface water sources. Previous studies show levels of EDCs in several water sources in the microgram per liter range. It is not yet known at what levels EDCs pose a threat to the ecosystem or what levels should be considered safe for human consumption. However, studies indicate that even these low levels of EDCs can be detrimental. Of particular concern are synthetic estrogens originating from pharmaceutical sources, for instance, the oral contraceptive. Four compounds were chosen for study: 17α-ethynylestradiol, 17α-estradiol, 17β-estradiol, and estrone. From natural water sources, these compounds will be collected through solid-phase extraction and then derivatized to their trimethylsilyl ethers. The samples will then be analyzed by gas chromatography and mass spectroscopy with electron impact ionization and selected ion monitoring.