

**Dr. Lisa M. Ponton**  
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## **Education**

B.Sc., Chemistry (ACS Certified) and Mathematics, 1996, University of Wisconsin – Stevens Point

M.Sc., Chemistry, 1999, University of Michigan

Ph.D., Analytical Chemistry, 2004, Iowa State University

## **Research**

### **Chemistry Area: Environmental Chemistry and Analytical Chemistry**

Dr. Ponton's research centers on the monitoring of anthropogenic chemicals in the environment, specifically endocrine disrupting compounds. As the detection limits of analytical methods improve, an increasing number of compounds are being discovered in the environment. While no portion of the environment is safe from contamination, the focus is on water and sediment analysis. In a survey of 139 water sampling sites across the US, several alarming trends were found in the levels of 95 different organic wastewater compounds. Among those compounds, detergent metabolites (which include several endocrine disruptors), steroids, and plasticizers had the highest frequency and total concentrations detected.

Endocrine disruptors are a class of compounds that, in some way, affect normal hormone function and therefore affect growth and development of plant and animal life. Uncontrolled altering of hormone levels in biota has been implicated in a variety of cases with serious ramifications, including the decline in the American alligator population through sterility and the sex changes of fish and shellfish. Many of these compounds are unregulated by the EPA. Therefore, wastewater treatment facilities may not be completely removing these contaminants. Scrutiny of the water post-treatment can provide insight into the level of contamination being released into the environment.

The primary method of water analysis for endocrine disrupting compounds first involves an extraction step to remove the compounds of interest. Depending on the nature of the analytes this could be a liquid-liquid extraction, or more commonly solid phase extraction (SPE). Because most endocrine disrupting compounds are polar, SPE is often the extraction method of choice. The final extracted sample is then typically analyzed with either high performance liquid chromatograph (HPLC) or gas chromatography-mass spectrometry (GS-MS).

Petrovic, M.; Eljarrant, E.; Lopez de Alda, M.J.; Barcelo, D., *Endocrine disrupting compounds and other emerging contaminants in the environment: A survey on new monitoring strategies and occurrence data*, Anal. Bioanal. Chem. (2004) 378: 549-562.

Analysis of Environmental Endocrine Disruptors. Keith, L.H.; Jones-Lepp, T.L.; Needham, L.L., Eds., ACS Symposium Series 747, ACS, Washington DC, 2000.