

DELAWARE WATER RESOURCES CENTER

WATER NEWS



Fate and Transport of Arsenic in Delaware Soils: Impacts on Water Quality

Jennifer Seiter, *DWRC* 2003-2006 fellow



Photo by Danielle Quigley

Drinking water safety, the growing demand for potable water supplies, and soil quality are critical and closely related water resource issues in Delaware today. One area of emerging concern is the potential for soil arsenic contamination -- and the possible movement of arsenic from soils to drinking waters. For example, *USEPA* recently lowered the maximum contaminant level for arsenic in drinking waters from 50 ppb to 10 ppb because of human health concerns. The State of Delaware is now evaluating the best approach to identify and manage arsenic contaminated soils. Sources of arsenic in Delaware soils include old tanneries, pesticides, fertilizers, and poultry manure (some of the arsenic added to poultry feed to control avian coccidiosis disease and enhance broiler growth can end up in manures).

DWRC Graduate Fellow Jennifer Seiter, advised by Dr. Donald Sparks of the *UD* Department of Plant and Soil Sciences, is studying the forms and fate of arsenic in Delaware soils impacted by industrial and agricultural inputs of arsenic. Jennifer's research is funded by the *DWRC* and the Delaware Department of Natural Resources and Environmental Control (*DNREC*). Her goal is to gain a more complete understanding of soil arsenic through macroscopic studies that help determine how chemical factors (pH, organic matter, texture, phosphate) influence arsenic binding and release in soils. Microscopic studies focus on using advanced spectroscopic methods to identify the specific chemical forms of arsenic in poultry manures and soils. Together, these studies will help to develop management strategies that prevent arsenic pollution of Delaware's soils and waters. Jen states that "When starting my Ph.D., it was important to me that I work on a project with direct application to soil and environmental quality. My research with Dr. Sparks should be beneficial to the scientific community, state agencies, policymakers, and the public".

DWRC Water News You Can Use

DWRC Water E-News features timely *DWRC* news, plus water resources jobs, project funding, upcoming water conferences and events. Visit <http://aq.udel.edu/dwrc/news.html>.

National Institute for Water Resources (*NIWR*) – *USGS* \$250,000 National Competitive Grants: https://niwr.org/competitive_grants/2006RF_P104G contains RFP and application information. Apply by Feb. 10, 2006. Local contact for this RFP is Dr. Tom Sims, Director, *DWRC*, (302-831-6757; fax 302-831-6758; jtsims@udel.edu).

Feb. 14, 2006: Meeting, DE chapter American Water Resources Association, DE Geological Survey, Newark. <http://deawra.org/Meetings/meetings.php>.

Apply by Mar. 1, 2006 for *NIWR* \$15,000 graduate fellowships in water science and technology. Visit <http://www.nwri-usa.org> or call 714-378-3278.

DWRC's 2006-2007 \$3500 undergraduate internship program spring applications are due Friday, March 24, 2006. <http://aq.udel.edu/dwrc/jobs.html>.



Left: At the Forum: *DWRC* fellow Liping Zhang discusses her water virus removal research with Roy Simonson, Director of Water and Waste Water, City of Newark. Photo: Amy Boyd

The *DWRC* welcomes David Legates, William Rohrer, and Denise Seliskar

State climatologist David Legates (legates@udel.edu 302-831-4920), Delaware Department of Agriculture Nutrient Management Program Administrator William Rohrer (William.Rohrer@state.de.us, 800-282-8685 in DE only), and UD College of Marine Studies research scientist and Halophyte Biotechnology Center co-director Denise Seliskar (seliskar@udel.edu, 302-645-4366), will now represent these organizations on the *DWRC* Advisory Panel.