Water-Friendly Landscape Design: Wetlands, Subdivision Design, Rain Gardens, and More

2005 Delaware Water Policy Forum Highlights

How can private citizens, city and state planners, subdivision and campus engineers, and groups of private and government agencies work together toward better water quality and supply in Delaware? Expert speakers addressed this topic at the fifth annual Delaware Water Forum “Water-Friendly Landscape Design: A Prescription for Healthy Watersheds”, attended by nearly 150 visitors from government, academia, and the commercial and private sectors on October 21, 2005 at the University of Delaware’s (UD) Clayton Hall. Co-sponsors of the event included the Delaware Water Resources Center (DWRC), UD Institute for Public Administration (IPA) Water Resources Agency (WRA), Longwood Graduate Program in Public Horticulture, and the Delaware Department of Natural Resources and Environmental Control (DNREC).

Please note: Detailed Forum presenter biographies, talk abstracts, and slide presentations can be found on WRA’s website at http://www.wr.udel.edu/. To request Forum proceedings, contact WRA Watershed Analyst Martha Corrozi, phone: (302) 831 – 4931 or email: mcorrozi@udel.edu.

After a welcome by IPA director Jerome Lewis, DWRC director Tom Sims described changes in Delaware during the Center’s 40 years of existence. From 1960 to 2000, Delaware experienced a 75% increase in population, a 150% increase in housing units, and a 20% loss in farmland, creating a number of serious water-related problems that are growing today as development increases statewide. Over the past five years, 60 DWRC interns have researched many of the water resources challenges brought on by this changing landscape.

Large-scale Delaware wetland and stream restoration projects were the topic of featured lunch keynote speaker Stephen N. Williams, Ecological Restoration Coordinator of DNREC’s Ecological Restoration and Protection Team in the Division of Soil and Water Conservation. The team was created in 2003 to bring together expertise and resources from various agencies for projects enhancing water quality, providing stream-bank protection, reducing erosion, and establishing wildlife habitat. DNREC’s innovative wetland restoration and construction techniques began in the early 1990s in natural areas (above) and along agricultural field margins (page 2).
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**


**National Institute for Water Resources (NIWR)** - USGS $250,000 National Competitive Grants: [https://niwr.org/competitive_grants/2006RF P104G](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).


**DWRC’s** 2006-2007 $3500 undergraduate internship program spring applications are due Friday, March 24, 2006. [http://ag.udel.edu/dwrc/jobs.html](http://ag.udel.edu/dwrc/jobs.html).

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

State climatologist [David Legates](mailto:legates@udel.edu, 302-831-4920), Delaware Department of Agriculture Nutrient Management Program Administrator [William Rohrer](mailto: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](mailto:seliskar@udel.edu, 302-645-4366), will now represent these organizations on the DWRC Advisory Panel.