

# WATER NEWS



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## Carbon Sequestration Symposium – October 21, 2008

The **DWRC** co-sponsored the symposium “Carbon Sequestration on Farms and Forest Lands,” held on October 21, 2008 at UD’s Clayton Hall. The symposium’s target audience was policy makers and non-profit organizations that may be stakeholders in developing carbon trading/offset programs in the Chesapeake Bay Region. The symposium was a direct result of a pledge made by the Minner Administration to the Chesapeake Bay Program’s Executive Council at its executive meeting in December 2007. At the meeting, Michael Scuse, then Delaware Secretary of Agriculture said, “Agricultural, commercial, and private interests must work together to meet all of the needs of the Chesapeake Watershed. Our next focus will be investigating agriculture and forestry’s gas mitigation options for carbon sequestration sinks. To meet our goals and foster better public understanding, Delaware will host a carbon sequestration working session for the watershed states and other Bay program partners... We will approach this issue as vigorously as we have nutrient management and land preservation.”

One hundred people were in attendance to hear information on carbon sequestration opportunities on farm and forest lands, measurement and verification techniques; trading program operational issues; and water quality co-benefits of agricultural sequestration activities. Mr. Scuse, as Chief of Staff for Governor Ruth Ann Minner, opened with the following remarks, “The information gleaned today will help our farmers continue their on-going stewardship while at the same time help them economically. Forty-six percent of Delaware land is farmland and thirty percent is forest land. We need to determine its potential to sequester carbon and how many metric tons of carbon dioxide equivalents it represents. Many of our farmers are already using conservation tillage, conservation or riparian buffers, grazing land management, nutrient management planning, and using biodiesel. Also, the farmers I know, including myself, are open to making cropping and/or land use changes that will increase their opportunity for salable credits. There are many forward looking, innovative farmers in Delaware. We will reach out to them about carbon sequestration and trading. We can consider carbon storage to be a crop, a money maker.”



Six presentations were made. The symposium ended with a panel of policy makers discussing carbon sequestration in the Chesapeake Bay region and how to make an offset program work. Video footage, Powerpoint slideshows, an attendee list, and sponsor information are found at <http://ag.udel.edu/carbonseq>.

*(Andrea Kreiner [[akreiner@verizon.net](mailto:akreiner@verizon.net)] organized the symposium. Thanks to Anne Fitzgerald, Delaware Department of Agriculture, for content for this article. Photos by D. Quigley and M. Pautler)*



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## DWRC Spotlight on 2008-09 Undergraduate Internships



UD's Department of Geological Sciences **DWRC** intern Cristina Fernandez tells of her experience working on her project, titled "Spatial and Temporal Integration of Pollution History in the Christina River Basin Using Sediment Cores from Bread and Cheese Island." She stated, "I have been working, with UD Plant and Soil Sciences' (PLSC) Dr. Kyungsoo Yoo's supervision, on the pollution and soil erosion history within the Christina River Basin. I am focusing on the time scales from decades to century, using sedimentary records from Bread and Cheese Island. The first step was to get familiar with the Delaware Geological Survey (DGS) well records and data already published for Churchman's Marsh. Mr. Scott Andres (DGS) and I identified two potential sites based on the material type of the sediments as well as the thickness of the Holocene deposits."

"I collected two cores using a Russian Peat Corer with the help of Mr. Andres, Dr. Peter McLaughlin (DGS), and Dr. Yoo. We were able to retrieve a total 3.35-m length of sediment core. Dr. McLaughlin and I described the cores and recorded any major changes such as grain size, color, and organic composition. I am currently analyzing 10-cm thick slices from the cores for elemental chemistry using ICP-AES with help from PLSC graduate student Chunmei Chen in the pedology lab. The concentrations of many elements, including heavy metals, are being measured by three different extractions: sodium pyrophosphate, dithionite citrate, and ammonium oxalate. I will be conducting total elemental chemistry after dissolving the samples using lithium borate fusion, and will be determining mineral surface area and palynology. Once the data are analyzed, we intend to reconstruct the preliminary pollution history of the area, combining the sedimentary record with the pollutants complexed onto the mineral surface within the sediment"



### ***2009 Jane duPont Lunger Internship***

The Brandywine Conservancy's Environmental Management Center announces the availability of an intern position with its Land Stewardship Program for late winter and spring of 2009. The internship will last approximately ten weeks, with a flexible start date. The Land Stewardship Intern will assist the easement management team with monitoring, administering, and enforcing over 400 conservation easements held by the Brandywine Conservancy. Further information can be found at <http://www.brandywineconservancy.org/emcjobs.html>. Applicants should submit a resume to Ms. Margie Bellwoar ([mbellwoar@brandywine.org](mailto:mbellwoar@brandywine.org)) by **January 15, 2009**.

### INTRODUCING THE *UD WATER* PROJECT

Stormwater management is one of the major challenges facing the University of Delaware (UD) and the City of Newark. Primary areas of concern are that runoff from the UD campus and the City contributes to nonpoint source pollution of area streams and also to downstream flooding.

***UD WATER (Watershed Action Team for Ecological Restoration)*** is a new, university-wide project, conducted in collaboration with the City of Newark, which seeks to develop and implement management measures to mitigate the stormwater runoff problems facing UD and the City. ***UD WATER*** brings together faculty, professional staff, and students from a wide variety of disciplines and interests.

The project, funded by a State of Delaware NPS 319 grant, the ***DWRC***, and the UD Water Resources Agency, focuses primarily on ecological restoration of stream corridors, wetlands, and other natural resource areas on the UD campus. These restoration projects, in conjunction with improved environmental education and more effective land-based nonpoint source pollution control measures, are the keys to improving water quality, enhancing stream health, and minimizing flooding. The initial focus of the ***UD WATER*** team is the development of a watershed plan for the Cool Run tributary of the White Clay Creek; larger, campus-wide efforts are planned as well.

Launched in the fall of 2008, the multi-disciplinary ***UD WATER*** project (see below for current participants) is now supporting the efforts of a six-member undergraduate student intern team to develop a watershed action plan for the Cool Run watershed. If you are interested in joining ***UD WATER*** contact one of the project coordinators for more details.

#### **UD WATER Team**

Tom Sims, Delaware Water Resources Center (Project Coordinator; [itsims@udel.edu](mailto:itsims@udel.edu))  
Jerry Kauffman, UD Water Resources Agency (Project Coordinator; [jerryk@udel.edu](mailto:jerryk@udel.edu))  
Carmine Balascio, UD Department of Bioresources Engineering  
Stacey Chirside, UD Department of Bioresources Engineering  
Martha Corrozi Narvaez, UD Water Resources Agency  
Kelley Dinsmore, City of Newark  
Andrew Homsey, UD Water Resources Agency  
Kiersten Joesten, UD Water Resources Agency  
Dan Leathers, UD Department of Geography / Delaware Environmental Observatory System  
Mike Loftus, UD Facilities  
Jenny McDermott, UD College of Agriculture and Natural Resources  
Tom McKenna, Delaware Geological Survey  
Mike Sistek, City of Newark  
Leslie York-Hubbard, UD Occupational Health and Safety

#### **UD WATER Interns**

Erin Dilworth – Natural Resources Management  
Nicole Dobbs – Environmental Engineering  
Erik Eggleston – Civil Engineering  
Kelsey Lanan – Geology  
Samantha Loprinzo – Resource Economics / Sustainable Development  
Stracy Redis – Environmental Engineering

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**DWRC Partner Passages ~~**

**Call for Posters and Exhibits – Frontiers in Nutrient Management Conference - January 28, 2009 – Rehoboth, DE**  
by Chris Bason, Center for the Inland Bays

You are invited to present a poster or an exhibit at the first “Frontiers in Nutrient Management Conference: Sources & Solutions in the Inland Bays Watershed.” This special one day event at the Atlantic Sands Hotel and Conference Center will focus on the 10 years of progress in nutrient management since Delaware’s Nutrient Management Law, and it seeks to identify new directions in management... The conference will highlight the data rich Inland Bays watershed but seeks to incorporate all relevant information from Delaware and beyond. We are encouraging submission on these topics...: 1) research projects on the sources, fate, transport, and management of nutrients; 2) ongoing or complete projects using innovative solutions to nutrient management including conservation design; 3) projects that have implemented more traditional nutrient management through non-traditional methods including financing; and 4) new nutrient management technologies/products, measurement devices, and assistance programs.

**Deadline for submittal is December 22, 2008.** Those interested should e-mail a poster abstract or an exhibit description (with space requirements) to [chrisbason@inlandbays.org](mailto:chrisbason@inlandbays.org). Authors and exhibitors selected for presentation will be notified by January 5, 2009.

Authors and exhibitors must register at <http://www.inlandbays.org>. For more information visit the website or contact Chris Bason at 302-226-8105 or [chrisbason@inlandbays.org](mailto:chrisbason@inlandbays.org).

**Call for Nominations – Chesapeake Research Consortium (CRC) Regional Conference**

by Kevin Sellner, Executive Director, CRC

Please check out the website, <http://chesapeakemeetings.com/EBM/>, for an update on the CRC Regional Conference, “Ecosystem Based Management: the Chesapeake and Other Systems,” scheduled for March 22-25, 2009 at the Baltimore Marriott. The Conference is described, but more importantly, there is a **call for session nominations**.

The suite of session options is extensive, and we have tried to set them up to encourage dialog. Some sessions can be designed to produce products, such as factsheets... Others may foster verbal exchange... between a panel and an extensive audience. Classic short presentation and Q&A periods can also be set up in sessions. A spectrum of options is available, the design in the hands of the submitters. An interesting aspect of the EBM Conference is that the Conference is focusing on identifying local, county, and state managers, policy people, industry representatives, and NGO staff who can affect future decision processes in our region and providing them the opportunity to voice their thoughts, internal decision procedures, and ways that the scientific community might inform and change these processes for cross-discipline decisions needed for the complex problems facing our landscape.

Session nominations are requested by **Dec. 15, 2008** and decisions on sessions will be made by Jan. 15, 2009.

**Water Resources Research - National Competitive Grants Program**

**Request for Proposals – FY 2009 / Announcement No. 09HQPA0010**

The U.S. Geological Survey, in cooperation with the National Institutes for Water Resources, requests proposals for matching grants to support research on the topics of water supply and water availability, including investigations of possible new sources of supply, improvement of impaired waters to usable quality, conservation of existing sources, and limiting growth in demand. Proposals are sought in not only the physical dimensions of supply and demand, but also quality trends in raw water supplies; the role of economics and institutions in water supply and demand; institutional arrangements for tracking and reporting water supply and availability; and institutional arrangements for coping with extreme hydrologic conditions. Any investigator at an accredited institution of higher learning in the U.S. is eligible to apply for a grant through a Water Resources Research Institute or Center... (<http://water.usgs.gov/wrri/institutes.html>). Proposals may be for projects of one to three years in duration and may request up to \$250,000 in federal funds. Successful applicants must match each dollar of the federal grant with one dollar from non-federal sources. Proposals must be filed... at <https://niwr.net/> by 5 PM, EST, **February 20, 2009** and must be approved for submission to the National Competitive Grants Program not later than 5 PM, EST, March 6, 2009 by the Institutes or Center through which they were submitted. The SF-424 (Application for Federal Assistance) portion of the application package must be submitted... at <http://www.grants.gov> not later than 5 PM EST, March 6, 2009 by the university at which the Institute or Center is located... The Government’s obligation under this program is contingent upon the availability of funds.

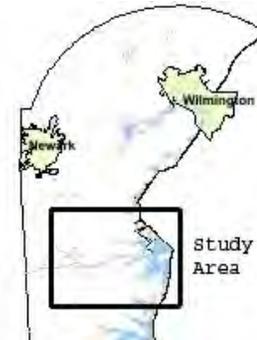
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## DWRC Spotlight on Graduate Research

### Meet Claudia Velez, one of the newest DWRC graduate fellows

“I graduated from the Escuela de Ingenieria de Antioquia, Colombia, in 1996, where I earned a B.S. in Geological Engineering. I then worked at the Cerrejon coal mine in La Guajira, Colombia, until I came to the U.S. to pursue a M.S. in Geology (2005) at the UD Department of Geological Sciences (GEOL). Currently, I am pursuing a Ph.D. in Geology at UD and since 2007 have been a **DWRC** fellow working on the project, “Hydrogeologic Characterization of the Potomac Aquifer, Delaware,” under the co-supervision of Dr. Susan McGeary, Associate Professor and Chair of the UD GEOL, and Dr. Peter McLaughlin, Jr., senior scientist at the Delaware Geological Survey (DGS).”



“My project consists of a multidisciplinary analysis of the geologic framework of the Potomac aquifer in the area of the Chesapeake and Delaware Canal. This study aims to delineate the distribution and extent of aquifer sands, and thereby help to better understand aquifer connectivity and fluid flow pathways. The methodology I am using employs a novel combination of tools, combining seismic reflection imaging of subsurface geology with analysis of wireline geophysical data from boreholes, collection of core data from the subsurface geologic units, and application of the concepts of sequence stratigraphy. The resulting geologic framework will be tested against hydrological data and observations from the Potomac aquifer. The resultant understanding of aquifer architecture will have significant application to issues in *water supply*, notably a framework of aquifer volume and connectivity for water-use allocations, and in *water quality*, particularly the identification of potential ground water contaminant pathways below industrial sites in the Delaware City, DE area.”

“Initially, a field team including students, faculty, and staff from GEOL and DGS collaborated with Mr. Steve Sargent from the Illinois State Geological Survey in the collection of ca. 21 km of seismic reflection data using a land streamer system, which is an alternative to conventional seismic equipment for collecting large amounts of seismic reflection data in urbanized and semi-urbanized areas. In the next phase of this project the resulting sections will be correlated with borehole data on file at DGS to determine the location of two cores to be drilled by DGS in 2009. In the final phase, existing and new data will be correlated to produce facies maps to show the distribution of the Potomac Formation in the Chesapeake and Delaware Canal area.”

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## DWRC Spotlight on Graduate Research

Former **DWRC** graduate fellow Jennifer Seiter, along with co-authors K.E. Staats-Borda, M. Ginder-Vogel, and D.L. Sparks, had the following article published in the *Journal of Environmental Quality*, 2008, Vol. 37, p. 477-485: **XANES spectroscopic analysis of phosphorus speciation in alum-amended poultry litter.**



## DWRC Notices and Calendar

### UPCOMING MEETINGS

#### **Delaware - American Water Resources Association Annual Dinner**

The DE AWRA will hold its annual dinner on **Dec. 9, 2008** at 6 PM at the Lobby House Restaurant in Dover, DE. The program includes keynote speaker Jane Rowan, overview of the annual report by Laura Whalen and Lori Schnick-Ryan, the results of the first annual scavenger hunt, and the UD student chapter silent auction. Visit <http://www.deawra.org> to register for the dinner and for directions to the restaurant. **DONATIONS FOR THE SILENT AUCTION are most welcome.** To donate, please contact Maureen Nelson at [mseymour@udel.edu](mailto:mseymour@udel.edu).

Jan. 11-14, 2009 – Partnership for the Delaware Estuary - Delaware Estuary Science and Environmental Summit, Cape May, NJ. Visit <http://www.delawareestuary.org>. **EARLY BIRD REGISTRATION DEADLINE is Dec. 15, 2008.**

Mar. 16-22, 2009 – 5<sup>th</sup> World Water Forum, “Bridging Divides for Water,” Istanbul, Turkey. Visit <http://www.worldwaterforum5.org>. Virtual Meeting Space is available.

Apr. 19-23, 2009 – National Ground Water Association 2009 Ground Water Summit, Tucson, AZ. Visit <http://www.ngwa.org/2009summit/index.aspx>.



*Educating the public about water issues continued to take place at community events, such as at the UD College of Agriculture and Natural Resources' Ag Day in April 2008. (Photo by M. Pautler)*



The EPA's National Network for Environmental Management Studies (NNEMS) 2009 Student Fellowships program has been announced. The application deadline is Feb. 2, 2009. For details and an application visit <http://www.epa.gov/education/students.html>.

# Delaware Water Resources Center Advisory Panel

## The Delaware Water Resources Center

The Delaware Water Resources Center (DWRC), established in 1965, is part of a network of 54 Water Resources Research Institutes throughout the nation. The DWRC receives funding through Section 104 of the Water Resources Research Act of 1984. The US Geological Survey administers the provisions of the Act and provides oversight of the nation's Water Resources Centers. The primary goals of the DWRC are: to support research that will provide solutions to Delaware's priority water problems, to promote the training and education of future water scientists, engineers, and policymakers, and to disseminate research results to water managers and the public. For more information, visit our website:

<http://ag.udel.edu/dwrc/>

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### Steven Abbott

*USDA Natural Resources Conservation Service*

### Scott Andres

*Delaware Geological Survey*

### Katherine Bunting-Howarth

*DNREC Division of Water Resources*

### Martha Corrozi Narvaez

*UD IPA Water Resources Agency*

### Judith Denver

*US Geological Survey*

### Jen Gochenaur

*Delaware Nature Society*

### Mingxin Guo

*Delaware State University*

### David Hansen

*UD Research & Education Center*

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### Andrew Manus

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*UD College of Marine & Earth Studies*

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Delaware Water Resources Center

College of Agriculture and Natural Resources

University of Delaware

152 Townsend Hall

Newark, DE 19716-2170

<http://ag.udel.edu/dwrc/>

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