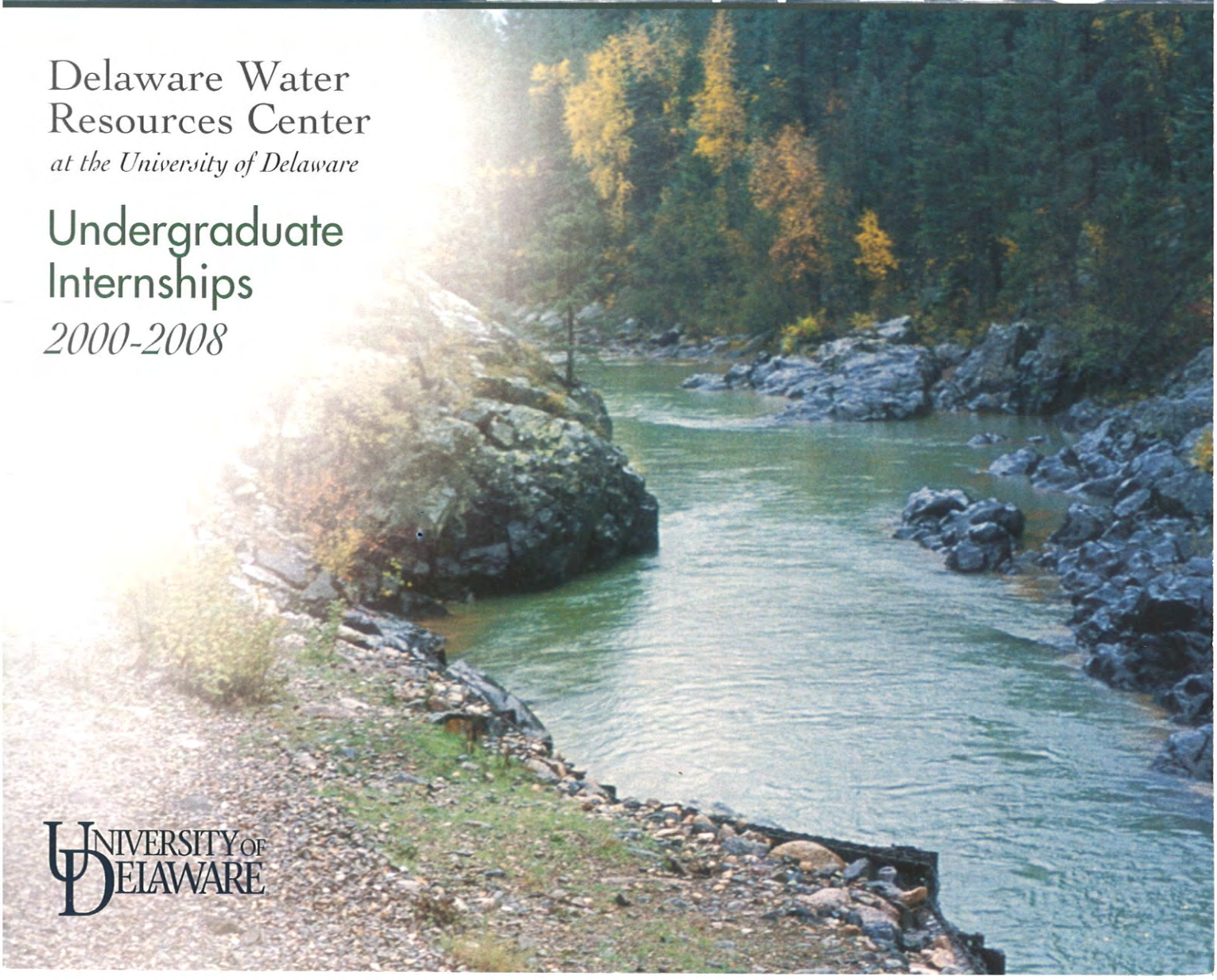
Delaware Water Resources Center

at the University of Delaware

Undergraduate Internships

2000-2008



UNIVERSITY OF DELAWARE

Delaware Water Resources Center – Internship Projects

As described below, the DWRC's "hands-on" internships address contemporary water quality concerns and provide students with an opportunity to apply their classroom educational experiences to real-world problems. Financial support from the DWRC and its partners enables interns to have a complete research experience - identifying a topic, conducting a research or education project, analyzing and interpreting results, preparing a final report, and presenting the findings at the annual UD Undergraduate Research Conference.

Indicators of Watershed Health for the Delaware River Basin

Co-Sponsor: UD Institute for Public Administration Water Resources Agency

Christi DeSisto helped to develop measurable environmental indicators for a new "Delaware River Basin State of the Basin Report Card," in collaboration with researchers at water resources institutes at Cornell, Rutgers, and Penn State. Assessment of the health of the 13,000 square mile river basin, which has headwaters in New York and flows through Delaware, New Jersey, and Pennsylvania, before joining the Atlantic Ocean, involved the evaluation of forested area, impervious cover, stream flow, water quality, and oyster and bald eagle populations. The four universities, the DWRC, the DRBC, and the Delaware Estuary program jointly issued the State of the Basin report. Christi, whose advisor was Gerald Kauffman of the University of Delaware Water Resources Agency, went on to work for an environmental engineering firm in northern Virginia.

"This internship has given me the opportunity to apply classroom knowledge to real-world applications. As a Civil Engineer, this project has opened my eyes to the importance of environmental engineering in today's society." – Christi DeSisto

Wetlands Regulation and Stream Habitat Restoration

Co-Sponsor: UD Institute for Public Administration Water Resources Agency

Kristen Sentoff DeWire conducted two DWRC internships. In one, she researched various legal aspects of how and why the regulations affecting Delaware wetlands were changing. In her second internship, she evaluated stream habitats in the University of Delaware Experimental Watershed. Based on her findings, she recommended habitat restoration techniques for areas along Blue Hen Creek and Fairfield Run, two tributaries of the White Clay Creek. These areas had been classified by previous DWRC interns as impaired by bank erosion caused by urbanization within the watershed. Sentoff's advisor for her two internships was Dr. Joshua Duke of the University of Delaware's Department of Food and Resource Economics. After graduating from the University, Kristin graduated from Pace University with a focus in environmental law and clerked for a judge in the Washington, D.C. Court of Appeals for a year.

"I'm interested in land use and wetlands issues policy and want to investigate a career in environmental law. The project aims to determine the significance of and responses to recent Supreme Court cases affecting wetlands, the current status of wetlands regulation in Delaware, and the actions necessary to protect Delaware wetlands in the future."

– Kristen Sentoff

Links between Land Use and Stream Health in the University of Delaware Experimental Watershed

Co-Sponsor: UD Institute for Public Administration Water Resources Agency

Tara Harrell Sieber characterized and delineated an "Experimental Watershed" on the University of Delaware campus, developing indicators that could be used to relate stream water quality to local land uses. She used these indicators to prepare a "report card" on the health of the Watershed in 2001, focusing on nitrogen and phosphorus loading from urban and suburban land uses. Her internship project was one of the first steps in an effort by the UD Water Resources Agency and others in UD's "water community" to use the experimental watershed in on-campus education and research projects. Gerald Kauffman of the University of Delaware Water Resources Agency was her advisor. Tara went on to work for the Virginia Department of Environmental Quality.

Assisting Small and Underserved Farmers in Meeting Water Quality Objectives; Fish Assemblages as Indicators of Stream Water Quality

Co-Sponsor: Delaware State University

Trevor Knight and **Alicia Revis** were the first DWRC interns from Delaware State University. For her project, "Assisting Small and Underserved Farmers in Meeting Water Quality Objectives," Alicia Revis conducted a survey in Kent County to evaluate farm drinking water samples for possible contaminants. She reported her results in educational workshops that explained the assistance programs available to help small, underserved farmers address water quality issues. Dr. Dennis McIntosh of the Delaware State University Department of Agriculture and Natural Resources advised Alicia. Trevor Knight's project, "Assessing the Feasibility of Using Fish Assemblages as Indicators of Water Quality in Delaware Streams," measured fish health in all three Delaware counties. Trevor's advisors were Dr. Dewayne Fox and Dr. Maria Labreveux, from Delaware State University's Department of Agriculture and Natural Resources. Alicia went on to study the effects of carbon dioxide on algal blooms with Dr. Gulnihal Ozbay at Delaware State University, while Trevor worked toward his M.S. in fisheries science, with an emphasis on aquatic vegetation management, at Texas A&M.

"I am working with a number of people, including extension agents and a microbiologist, and learning the value of patience and persistence in gathering data. I am glad to have this opportunity to rise to the challenge of working in the public arena on water quality issues." – Alicia Revis

"This project has given me a better understanding of fish communities in small streams and has allowed me to work with water pollution response in fishes I have never seen before."" – Trevor Knight

Beneficial Insect Control of Invasive Plants That Damage Delaware Wetlands

Co-Sponsor: UD College of Agriculture and Natural Resources

Jamie Pool and **Jason Graham's** projects, conducted jointly by the two interns and completed over two years, dealt with purple loosestrife, an invasive plant clogging Delaware freshwater ponds. The first year, the interns used *Galerucella* beetles as biological controls for loosestrife at Flat Pond near the Chesapeake & Delaware Canal. They set up an insect release and monitoring project aimed at reducing the size of the loosestrife plant community which would then help to restore the health of the wetlands. The following year, Graham compared the biodiversity of Flat Pond, where a colony of loosestrife-targeting beetles was successfully established, to an Ashland Nature Center site where the beetles did not thrive. Pool's second-year project sought to determine whether greater biodiversity subjects beetle populations to higher predator risks. Jason and Jamie were advised both years by Dr. Judith Hough-Goldstein of the University of Delaware's Department of Entomology and Wildlife Ecology. Additional funding to support their studies was provided by the University of Delaware Office of Undergraduate Research, the Delaware Nature Society, the Delaware Bay Retriever Club, the National Fish and Wildlife Foundation, and the Chesapeake Bay Small Watershed Grants Program. Jason went on to attend graduate school in Entomology at the University of Florida, and Jamie worked for Apple Computer before attending Pace Law School in White Plains, NY, known for its environmental law program.

"I learned this is the type of work I would like to do after graduate school. It was an exciting opportunity to use fieldwork and scientific research to make a positive difference in the control of an invasive species" – Jason Graham (left)

"This project has opened my eyes to the aspects of field research, and it has given me a greater sense of responsibility and diligence. I feel that this internship has greatly benefited me. It has allowed me to experience first-hand what it is like to work in the field and in an academic research environment. Even more, it has allowed me to do something that I love - help the environment."
– Jamie Pool (right)

Can Brackish Coastal Aquifers Support Biodiesel Production from Halophytes?

Co-Sponsor: UD College of Marine Studies

Maia Tatinclaux investigated the economic feasibility of using halophytic (salt-tolerant) plants for biodiesel production in coastal areas dominated by saline soils and ground waters. Her goal was to assess the potential to use such biodiesel fuels as an alternative to energy produced by refineries that are concentrated on the Gulf and Mid-Atlantic coasts and are therefore susceptible to natural disasters. Maia's research built on her earlier experiments with the halophyte *Kosteletzkya virginica* during a National Science Foundation Summer Research Experience for Undergraduates internship at the UD College of Marine Studies. Dr. Jack Gallagher and Dr. Denise Seliskar of the University of Delaware's College of Marine Studies Halophyte Biotechnology Laboratory advised Maia.

Wastewater Application and Chesapeake Bay Water Quality

Co-Sponsor: UD College of Engineering

Erin Zimich's internship research focused on understanding the extent to which land application of wastewater from municipalities, as opposed to point source discharge to streams, could help reduce nutrient loads to the Chesapeake Bay. She inventoried current and prospective land application sites in all six states in this watershed and characterized their suitability for wastewater irrigation based on soil properties, hydrology, and other site factors. Erin also investigated the costs and benefits of increasing the use of this best management practice throughout the watershed. Dr. William Ritter, University of Delaware's Department of Bioresources Engineering, served as her advisor.

"My internship has given me perspective on the state of water quality in the Chesapeake Bay and made me realize that, in order to maintain this precious resource, drastic measures must be taken."
– Erin Zimich

Eelgrass - A Key to Restoration of Water Quality in Coastal Bays

Co-Sponsor: UD College of Marine and Earth Studies

Finding ways to mass-produce eelgrass for large-scale coastal bay water quality restoration projects was the goal of **Katherine Tigani's** internship project. Tigani, advised by Dr. John L. Gallagher of the University of Delaware's College of Marine and Earth Studies, built upon the research she had done previously in the University of Delaware Halophyte Biotechnology Laboratory. In her internship research, she worked to devise a micro-propagation methodology that could regenerate eelgrass in large volumes for use in restoration projects. After completing her undergraduate degree, Katherine enrolled in graduate school at the University of Delaware's College of Marine and Earth Studies, where, funded by a two-year grant from CICEET, she extended the work she did as an intern.

"This DWRC internship has been an amazing experience. Not only has it led to some exciting results in the lab, but the project has developed into a thesis for my Master's degree at the College of Marine Studies. Through the internship, I was able to gain valuable contacts in the field and have now arranged to begin field collections along both coasts of the U.S."
– Katherine Tigani

Managing Mosquitoes in Storm Water Ponds to Prevent Spread of West Nile Virus

Co-Sponsor: UD College of Agriculture and Natural Resources

Nancy Scott researched sustainable, non-toxic methods to manage mosquito popoulations in ponds constructed to retain storm water runoff in urban and suburban landscapes. This public health oriented research focused on practical means to control the mosquitoes that are vectors of West Nile virus, a well-known threat to human and animal health, as well as nuisance mosquito species. Nancy worked with Dr. Jack B. Gingrich of the University of Delaware's Department of Entomology and Wildlife Conservation to design and test mosquito management methods that were environmentally safe, cost-effective, and require minimal human resource inputs to implement. Since graduating from the University of Delaware with her B.S. in environmental science in 2006, Nancy has worked as a contractor to the U.S. Army Center for Health Promotion and Preventive Medicine, first at Ft. Meade, MD and then at the Landstuhl Regional Medical Center in Germany, where she set up a new diagnostic lab for detecting pathogens transmitted by anthropods.

"Our project surveyed the distribution of mosquitoes throughout Delaware and experimented with ways to control their populations in storm water retention ponds. Through this internship, I am more aware of the complex communities that are a part of these ponds and the impacts that human activities have on them."– Nancy Scott

Rain Gardens and Environmental Landscaping

Co-Sponsor: UD Department of Plant and Soil Sciences

Leslie Carter's internship focused on educating the public about the water quality value of environmental landscaping through her efforts to promote the use of "Rain Gardens" as a runoff control best management practice. She initially began working on rain gardens as a University of Delaware Science and Engineering Scholar and expanded upon these efforts during her DWRC internship. Her project involved disseminating information on how to design and install rain gardens to the public. She also worked on the creation of interpretive signage for a large rain garden located at the University of Delaware Water Resources Agency. Dr. Susan Barton of the University of Delaware's Department of Plant and Soil Sciences served as Leslie's advisor. In 2007, Leslie finished a project at St. Andrew's School, in which she redesigned a courtyard space between dormitories and wrote interpretive signs for the rain garden and meadow. Leslie also served as a Continuing Education Intern at Longwood Gardens in 2007 and plans to study landscape architecture in graduate school.

"For the DWRC internship I studied rain gardens. It was a great opportunity to work on a long term and in-depth project on a topic of my interest. The contacts I made during this internship with cooperative extension agents, master gardeners, and other horticulturists provided one of the first steps in developing a professional network. The internship also helped me develop skills in communication, research, and design which have since proved to be very helpful in accomplishing my goals in horticulture. The project I worked on is an interesting topic and people still ask me about rain gardens rather frequently. I continually use the knowledge, connections, and skills that I gained from the DWRC internship." – Leslie Carter

Heavy Metal-Contaminated Soils and Water Quality

Co-Sponsor: UD Department of Plant and Soil Sciences

Brian Rosen studied the rate of heavy metal reactions with iron oxides, an important soil constituent. He investigated how the methodology used to quantify nickel sorption in contaminated soils would improve our ability to predict the movement of heavy metals from soils to ground and surface waters. Developing accurate methods to study metal movement in soils is important to modeling and remediation efforts at sites polluted by industrial sources of nickel and other heavy metals. Dr. Donald Sparks,of the University of Delaware's Department of Plant and Soil Sciences, was Brian's advisor. Brian earned his B.S. in chemical engineering at the University of Delaware.

"My DWRC project allows me to take an engineering approach to solve for sorption mechanisms. I have learned how to design batch experiments in order to reveal the sorption kinetics of M.E.S (acid) and nickel to the mineral goethite and have gained experience in using the analytical equipment needed to monitor my experiments."
– Brian Rosen

Nutrient Status and Ecological Health of Freshwater Wetlands

Co-Sponsor: UD Department of Plant and Soil Sciences

Carol Carlson's internship project focused on monitoring and assessing the nutrient status and overall health of freshwater wetlands. Using six freshwater wetlands located in Delaware, Maryland, and Pennsylvania, she conducted extensive sampling for pollutants and stressors, such as nutrients (nitrogen and phosphorus), heavy metals, sediment, organics, pathogens, pesticides, extreme pH, and biological oxygen demand. Biological indicators, like salamanders and plant community diversity, were also investigated and used to characterize overall wetland health, based on hydrology, habitat status, soils, and water quality. Carol's advisor was Dr. Bruce Vasilas of the University of Delaware's Department of Plant and Soil Sciences, and she graduated from the University of Delaware in Plant Science.

"Through my internship with DWRC, I have been made aware of the different aspects of monitoring and assessing wetlands. I have had the opportunity to participate in soil descriptions at sites that differed in topography, land use, and surrounding geography. I have also been involved in collecting water samples to measure phosphorous and nitrogen levels, as well as used equipment to measure soil water temperature and dissolved oxygen. It has been a great learning experience."
– Carol Carlson

Animal Nutrition – Links to Water Quality

Co-Sponsor: UD Institute of Soil and Environmental Quality

Jarvon Tobias's project investigated how copper used in poultry feed affected the fate of copper in manures applied to cropland. Preventing copper transport from manured soils to surface waters is important to ecosystem health and to protect aquatic life. Her research contributed to an understanding of how animal diets can be formulated to optimize poultry health while protecting water quality. Dr. William Saylor of the University of Delaware's Department of Animal and Food Sciences advised Jarvon, who went on to Veterinary School at Tuskegee University.

Characterizing the Hydrologic Properties of Delaware Aquifers

Co-Sponsor: Delaware Geological Survey

Ground water aquifers in southern New Castle County are the main water sources for domestic, irrigation, and public well use, the source of all base flow in local streams, and a conduit to all ground water in deeper confined aquifers. **Elizabeth Wolff's** project involved measuring the saturated hydraulic conductivity of these important Delaware aquifers, to allow future quantitative analysis of water availability, sustainable pumping rates, and contaminant transport. Scott Andres of the Delaware Geological Survey served as Elizabeth's advisor. Elizabeth graduated from the University of Delaware in May 2007 and worked for DGS before beginning a hydrologist position with DNREC Tanks Management Branch in New Castle, DE.

Innovative Strategies for Bioremediation of Wastewaters

Co-Sponsor: UD College of Engineering

Bret Strogen researched the design and use of bioremediation systems to clean up wastewaters. He worked on the development of a novel pollution removal system that showed how a microbial "bioreactor" used to purify wastewaters and sludges could also be designed to generate electricity. Dr. Steven Dentel and Dr. Pei Chiu of the University of Delaware's Civil and Environmental Engineering Department advised Bret. After earning his B.S. in environmental engineering at the University of Delaware, Bret completed an M.S. in environmental engineering at the University of California at Berkeley and became a Project Engineer at Weston Solutions in West Chester, PA. Bret, a Morris K. Udall scholarship recipient while an undergraduate, served as a Biofuels Event Coordinator for the Udall Ten-Year anniversary bus tour (udall.gov), educating his group and the public about the use of alternative fuels.

"My reactor obtains a current by connecting anaerobic wastewater sludge to an aerated water zone. This research may shed light on new ways to accelerate pollution removal, or even to provide small amounts of useful electricity." – Bret Strogen

Streamside Buffers in the Chesapeake Bay Watershed

Co-Sponsor: UD College of Arts and Sciences

Alexander DeWire's internship project examined factors affecting the implementation of riparian buffers in Southeastern Pennsylvania, Delaware, and Eastern Maryland. Under the advisement of Dr. Janet Johnson of the University of Delaware's Department of Political Science, Alex measured the extent of streamside reforestation undertaken by property owners in the Chesapeake Bay Watershed to reduce nonpoint pollution. His project also involved developing a means for organizations involved in nonpoint pollution control to track homeowners' efforts to improve water quality. After graduating from the University of Delaware, Alex graduated from Yale's School of Forestry and Environmental Management with a Master's in environmental management and worked for Tetra Tech, Inc., a water resources consulting firm in Fairfax, VA.

"I want to gain insight about the difficulties, advantages, and methods of researching a political and environmental issue, such as riparian buffering, which is timely and also interesting. My goal is to educate landowners about the advantages of riparian buffering, including whom to contact for information and how to get funding for this best management practice." – Alex DeWire

Delaware Water Resources Center at the University of Delaware
Undergraduate Interns: 2000 – 2008

Intern
Advisor(s)
Department(s)
Project title

Visit http://ag.udel.edu/dwrc/publications.html for Project Abstracts

Undergraduate Interns 2007-2008

Sarah Chatterson
Dr. Joshua Duke
UD Department of Food and Resource Economics
Willingness to Pay for Sustainable Agricultural Practices in an Urbanizing Region

Jennifer Handlin
Dr. Yan Jin
UD Department of Plant and Soil Sciences
Evaluating the Use of Zerovalent Iron to Remove Pathogens from Water

Nathan Kiracofe
Dr. Shreeram Inamdar
UD Department of Bioresources Engineering
Assessment of Baseline Water Quality and Influent Pollutant Source Identification in the Noxontown Pond Watershed, Middletown, DE

Stephen Mayer
Dr. Joshua Duke
UD Department of Food and Resource Economics
Benefit-Cost Analysis of Pelletized Broiler Litter in Agronomic Crop Production and Turf Grass Management

Oluchi Ukaegbu
Dr. Gulnihal Ozbay
DSU Department of Agriculture and Natural Resources
*Viability of a Freshwater Mussel (*Elliptio complanata*) as a Biological Filter for Aquaculture Pond Water Quality*

Laura Yayac
Gerald Kauffman
UD Water Resources Agency
Stream Restoration of a Piedmont Headwater Stream in the White Clay Creek Wild and Scenic Watershed

Undergraduate Interns 2006-2007

Jennifer Boutin
Dr. David Legates
UD Department of Geography
The Effect of Proposed Climatic Warming on the Hydrological Cycle

Belinda Gao
Dr. Steven Dentel
UD Department of Civil and Environmental Engineering
Enhanced Pollutant Biodegradation by Electrode Use

Jason Graham
Dr. Judith Hough-Goldstein
UD Department of Entomology and Wildlife Ecology
Predators of Galerucella *Beetles, Biocontrol Agents of Purple Loosestrife*

Garrett Peters
Dr. William Ullman and Dr. Douglas Miller
UD College of Marine and Earth Studies, Lewes, DE
Groundwater Seepage at Roosevelt Inlet, Delaware

Samantha Smith
Dr. Diane Herson
UD Department of Biological Sciences
Detection of Salmonella *in Biosolids Using PCR*

Belinda Gao

Bailey Dugan

Le'Sasha Stewart
Dr. Gulnihal Ozbay
DSU Department of Agriculture and Natural Resources
*Assessment of Sediment Macro-infaunal Communities Associated with Eastern Oyster (*Crassostrea virginica*) in Delaware Indian River Bay*

Sarah Sturtz
Dr. John Gingrich
UD Department of Entomology and Wildlife Ecology
Sustainable Mosquito Control for Stormwater Ponds

Jarvon Tobias
Dr. William Saylor
UD Department of Animal and Food Sciences
The Effect of Dietary Level and Source of Copper on Chemically-defined Fractions of Copper in Broiler Excreta

Elizabeth Wolff
Scott Andres
Delaware Geological Survey
Hydraulic Properties of the Unconfined Aquifer in Southern New Castle County

Undergraduate Interns 2005-2006

Leslie Carter
Dr. Susan Barton
UD Department of Plant and Soil Sciences
Rain Gardens

Christi DeSisto
Gerald Kauffman
UD Water Resources Agency
Delaware River State of the Basin Report 2006: Development of Environmental Indicators

Bailey Dugan
Scott Andres and Andrew Klingbeil
Delaware Geological Survey
Hydrogeology of the Near-surface Aquifers in Sussex County

Jason Graham
Dr. Judith Hough-Goldstein
UD Department of Entomology and Wildlife Ecology
The Impact of Predation on the Galerucella *Beetle, a Purple Loosestrife Biocontrol Agent*

Leslie Howe
Dr. Mingxin Guo and Dr. Maria Labreveux
DSU Department of Agriculture and Natural Resources
Nutrient Release from Mineralization of Poultry Litter under Simulated Field Conditions

Lydia Leclair
Dr. Delphis Levia
UD Department of Geography
Winter Needle Conductance Rates of Pinus strobus *L. (Eastern White Pine): Meteorological Conditions and Intraspecific Variability*

Matthew Lee
Dr. Joshua Duke and Dr. Rhonda Aull Hyde
UD Department of Food and Resource Economics
Landowner Perceptions of the Stringency of Water Quality Regulations in Delaware

Matthew Loiacono
Dr. Joshua Duke and Dr. Steven Hastings
UD Department of Food and Resource Economics
The Impact of the Solid Waste *Decision on Isolated Wetlands*

Maia Tatinclaux

Jimit Modi
Dr. Herbert Allen
UD Department of Civil and Environmental Engineering
Kinetics Model for Soil

Jamie Pool
Dr. Judith Hough-Goldstein
UD Department of Entomology and Wildlife Ecology
Biological Control of Purple Loosestrife: Preventing Wetlands Degradation by an Invasive Plant

Brian Rosen
Dr. Donald Sparks
UD Department of Plant and Soil Sciences
Nickel Sorption Kinetics at the Geothite/Water Interface: Effects of Ionic Strength and 2-[N-Morphalino]-ethanesulfonic Acid (MES)

Carolyn Schnek
Dr. William Saylor, Michael Persia, and James Skaggs
UD Department of Animal and Food Sciences
The Effect of Dietary Level and Source of Copper (Cu) on Broiler Cu Excretion and Movement of Cu through Broiler Excreta Amended Soils

Nancy Scott
Dr. John Gingrich
UD Department of Entomology and Wildlife Ecology
Sustainable, Low-impact Methods for Managing Mosquitoes in Storm Water Ponds

Samantha Smith
Dr. Diane Herson
UD Department of Biological Sciences
Detection of Salmonella *in Biosolids Using a Combination of Cultural, Molecular, and Immunological Methods*

Maia Tatinclaux
Dr. John Gallagher and Dr. Denise Seliskar
UD College of Marine Studies, Lewes, DE
*Location and Evaluation of Coastal and Inland Brackish Aquifers for the Support of Halophyte (*Kosteletzkya*) Oil Production for Biodiesel Fuel Conversion*

Katherine Tigani
Dr. John Gallagher
UD College of Marine Studies, Lewes, DE
Restoring Coastal Bay Water Quality via Native Eelgrass Micropropagation

Michael Zuk
Dr. John Frett
UD Department of Plant and Soil Sciences
Diversity, Function, and Benefits of Plants Adapted to Flood-prone and Poorly Drained Environments

Undergraduate Interns 2004-2005

Carol Carlson
Dr. Bruce Vasilas
UD Department of Plant and Soil Sciences
Monitoring and Assessing the Nutrient Status and Overall Health of Freshwater Wetlands

Matthew DeSanctis
Dr. Janet Johnson
UD Department of Political Science
An Evaluation of Water Supply Security in the State of Delaware after September 11, 2001

Carol Carlson

Andrew Joslyn

Steven Ernst
Dr. Steven Hastings and Gerald Kauffman
UD Department of Food and Resource Economics and UD Water Resources Agency
An Analysis of Transboundary Resource Governance Structure in Relation to the Christina River Basin

Jason Graham
Dr. Judith Hough-Goldstein
UD Department of Entomology and Wildlife Conservation
Biological Control of Purple Loosestrife at Flat Pond: Reclaiming a Freshwater Pond near the Ce3D Canal

Matthew King
Dr. James Glancey
UD Department of Bioresources Engineering
Design and Field Testing of Advanced Surveillance Systems for Delaware's Shallow Depth Estuaries

David Kleinot (USGS)
Judith Denver and Mark Nardi
USGS MD-DE-DC Water Science Center
Potomac River Basin / Delmarva Peninsula Data Retrieval Program (USGS National Water-Quality Assessment Program)

Trevor Knight
Dr. Dewayne Fox and Dr. Maria Labreveux
DSU Department of Agriculture and Natural Resources
Assessing the Feasibility of Using Fish Assemblages as Indicators of Water Quality in Delaware Streams

Jamie Pool
Dr. Judith Hough-Goldstein
UD Department of Entomology and Wildlife Conservation
Biological Control of Purple Loosestrife: Preventing Wetlands Degradation by an Invasive Plant

Alicia Revis
Dr. Dennis McIntosh
DSU Department of Agriculture and Natural Resources
Assisting Small and Underserved Farmers in Meeting Water Quality Objectives

Erin Zimich
Dr. William Ritter
UD Department of Civil and Environmental Engineering
Land Application of Wastewater in the Chesapeake Bay

Undergraduate Interns 2003-2004

Megan Bielawa
Dr. Jack Gingrich
UD Department of Entomology and Applied Ecology
Breeding of Potential West Nile Virus Vectors in Stormwater Ponds and Constructed Wetlands

Kathleen Cormier
Martin Wollaston
UD Water Resources Agency
Field Measurements of Non Point Source Pollutant Removal Efficiencies of Stormwater BMPs at the UD Experimental Watershed

Matt Simon

Steven Ernst

Justin Glier
Dr. Donald Sparks
UD Department of Plant and Soil Sciences
Influences of Nitrogen Form on Nickel Accumulation by Alyssum murale

Andrew Joslyn
Dr. Steven Dentel
UD Department of Civil and Environmental Engineering
Enhanced Degradation of Benzoate by Electrode-utilizing Microorganisms

Eric Lang (USGS)
Judith Denver and Marie Stewart
USGS, DE Subdistrict
Mapping the Base of Kent County's Unconfined Surface Aquifer

Alice McDermott
Anastasia Chirnside
UD Department of Bioresources Engineering
Biological and Enzymatic Treatment of a Food Processing Wastewater

Sarah Sturtz

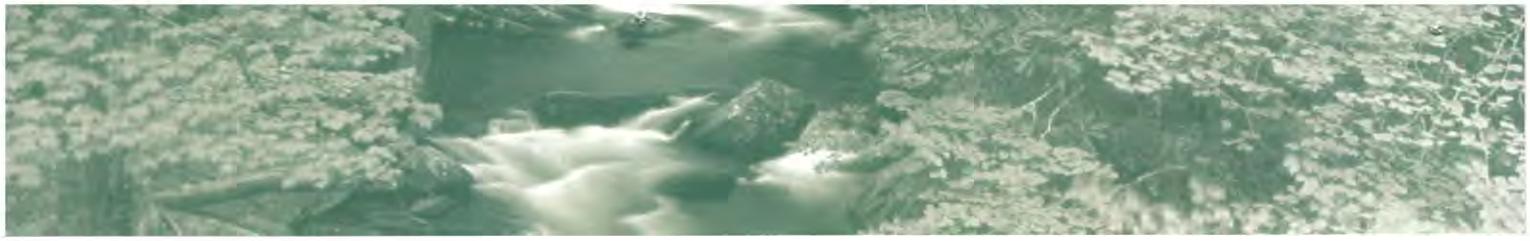
Mark Neimeister
Scott Andres
Delaware Geological Survey
Nanticoke River Watershed: Total Maximum Daily Loads (TMDL) Program

Kate Schutte
Dr. Steven Dentel
UD Department of Civil and Environmental Engineering
Enhanced Pollutant Biodegradation by Electrode Use

Kristen Sentoff
Gerald Kauffman
UD Water Resources Agency
Fairfield Run: An Evaluation of Stream Habitat Restoration at the UD Experimental Watershed

Matt Simon
Dr. Eric Wommack
UD Department of Plant and Soil Sciences/College of Marine Studies
Enumeration of Aquatic RNA Viruses from a Mixed Viral Sample

Judith Walker
Gerald Kauffman
UD Water Resources Agency
Blue Hen Creek: An Evaluation of Stream Habitat Restoration at the UD Experimental Watershed



Undergraduate Interns 2002-2003

Laura Boyer
Dr. Tom Sims
UD Department of Plant and Soil Sciences
The Chemistry of Phosphorus in the Erodible Fraction of Delaware Soils

Alexander DeWire
Dr. Janet Johnson
UD Department of Political Science
Riparian Buffering Program Implementation Analysis for the Mid-Atlantic Region

Michael League
Dr. John Gallagher
UD College of Marine Studies
Understanding the Mechanisms of the Spread of Phragmites australis*: For Better or for Worse*

Kristen Sentoff
Dr. Joshua Duke
UD Department of Food and Resource Economics
Regulating Wetlands in Delaware in a Changing Legal Environment

Aditya Sharma and Bret Strogen
Dr. Steven Dentel and Dr. Pei Chiu
UD Department of Civil and Environmental Engineering
Accelerated Bioremediation of Wastewater Using Electrode-reducing Microorganisms

Kerrie Smith
Dr. James Glancey
UD Departments of Mechanical Engineering and Bioresources Engineering
An Autonomous Full Water Column Environmental Monitoring System with Telemetry

Undergraduate Interns 2001-2002

Christina Eckstrand
Dr. William Saylor
UD Department of Animal and Food Sciences
Fate of Microbial Phytase in the Gastrointestinal Tract of Chicks, and Effects on Phosphorus Solubility

Tara Harrell
Gerald Kauffman
UD Water Resources Agency
Links between Land Use and Stream Health in the University of Delaware Experimental Watershed

Katie Lemon
Dr. Joshua Duke
UD Department of Food and Resource Economics
An Analysis of Delaware's Groundwater Allocation Laws: Proposing a Plan

Katherine Cormier and Kristen Sentoff

Kirsten Lloyd
Dr. Bruce Vasilas
UD Department of Plant and Soil Sciences
Functional Assessment of Wetlands for Mitigation Purposes

John Place
Susan Truehart Garey
Kent County Cooperative Extension
A Nutrient Management Program for Delaware Youth

Lindsay Scanlon
Dr. Ronald Martin
UD Department of Geology
Stratigraphic Analysis of the St. Jones Estuary

Kristin Staats
Dr. Bruce Vasilas
UD Department of Plant and Soil Sciences
Ectomycorrhizal Mantles as Indicators of Historic Hydric Soils

Michael League

Undergraduate Interns 2000-2001

Gregory Buckmaster
Dr. Jeff Fuhrmann
UD Department of Plant and Soil Sciences
The Impact of Alum on Pathogen Survival in Poultry Litter

Jennifer Campagnini
Gerald Kauffman
UD Water Resources Agency
The University of Delaware Experimental Watershed Project

Maeve Desmond
Dr. Bruce Vasilas
UD Department of Plant and Soil Sciences
Functional Assessment of Wetlands Using a Hydrogeomorphic Model

Robert Ehemann
Dr. Joshua Duke
UD Department of Food and Resource Economics
A Spatial Analysis of the Distributional Effects of Water Quantity Management

Emily Gonce
Dr. James Morrison and Dr. Hye-Shin Kim
UD Department of Consumer Studies
Attitudes of Consumers toward Bottled Water

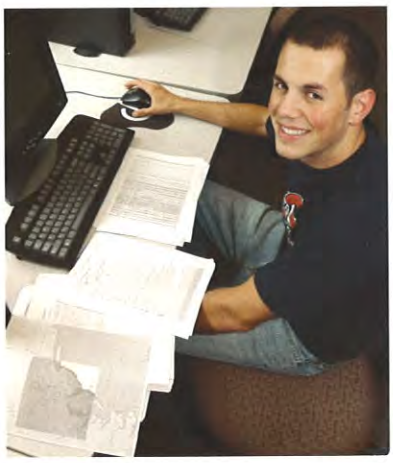
Jason Hetrick
Anastasia Chirnside
UD Department of Bioresources Engineering
Feasibility of Using a Fungal Bioreactor in Treating Industrial Wastewater

Megan Bielawa

Leigh Johnson
Dr. William Ritter
UD Department of Bioresources Engineering
Feasibility of Composting Poultry Litter and Food Residuals for Use as a Soil Amendment and Potting Medium

Anna Palermo
Dr. Bruce Vasilas
UD Department of Plant and Soil Sciences
Use of Ectomycorrhiza as a Soil Hydrology Indicator for Wetland Assessments

Melissa Weitz
Dr. Mark Radosevich
UD Department of Plant and Soil Sciences
Biodiversity of the Atrazine Chlorohydrolase (atzA) Gene in Soil Microbial Communities as a Function of Triazine Treatment History



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