



Maryland Water Resources Research Center

Department of Civil & Environmental Engineering
University of Maryland
College Park, Maryland 20742



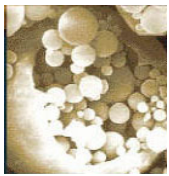
Mission

The MWRRC supports Maryland's water research and educational needs by funding high priority research projects and sponsoring programs and conferences on current water issues. Most of the research funding is directed toward supporting graduate students and young faculty members. The Center acts as a focal point on Maryland water issues with both Federal and State agencies.

Water Issues in Maryland

The Chesapeake Bay is the most valuable natural resource in the State, supporting an economy of billions of dollars. Numerous economic and environmental benefits are derived from the Bay and its tributaries. However, supporting a population of 15 million people in its watershed places significant stresses on the Bay ecosystems. Urban runoff, agricultural runoff, atmospheric deposition, and wastewater discharges continue to harm the Bay's water quality. The MWRRC continues to focus its limited resources to address these important issues.

Research



Engineers are investigating the use of high carbon fly ash as part of a permeable sorptive barrier to prevent the movement of petroleum hydrocarbons in soil. The results thus far are promising and provide a low cost remedy for preventing toxic contaminants from entering into ground water supplies.

Biologists are trying to determine whether endocrine disruptors in poultry litter may be carried by runoff into nearby streams and ultimately into the Chesapeake Bay. These reproductive responses will be tested by exposing fish to runoff from poultry litter.



The impact of sea level rise on coastal wetlands in the Chesapeake Bay is under investigation. Sea level rise is likely to result in increases in salinity and soil waterlogging in low-salinity marshes, causing stress and mortality of salt intolerant species and altering vegetation diversity and species composition.

Geologists are investigating the impact of riparian vegetation on the flow of water in the Anacostia River. This project aims to determine what effect native grasses have on the capacity of the channel to convey flood discharges.

Scientists are studying the impact of road salt on both carbon and nitrogen processing in streams feeding into the Chesapeake Bay. Streams draining human-dominated landscapes can experience enhanced loading of road salt deicers. Elevated levels can cause toxicity in freshwater life.

Environmental Engineers are developing a bioretention system that will promote the capture and biodegradation of pollutants in storm water runoff. These systems have been found to be very effective and can be employed in urban areas to help minimize environmental impacts of development.

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Wetlands bordering the Chesapeake Bay are under intense study. Dr. Andrew Baldwin and his colleagues in the Department of Environmental Science and Technology are trying to determine the impact of sea level rises on wetland vegetation

Watch for the announcement of the Center's 2007 fall water research symposium. We are in the process of identifying a high impact topic for this year's symposium. One topic under serious consideration is the impact of Nitrogen and Phosphorous on Maryland water. As in the past, the symposium will address an important Maryland water issue. We look forward to seeing you in the fall!

Information Dissemination

For the past five years the Center has co-sponsored an outstanding series of conferences on important water issues in Maryland:

- 2003: Maryland Water Policy – What Does the Future Hold
- 2004: Wastewater Treatment Plants and the Chesapeake Bay
- 2005: Urbanization: Stresses on Maryland Water Resources
- 2006: Extreme Water in Maryland

These conferences help to link current science to various stakeholders throughout the state and region.

Students

Students play an important role in the Center's research program. They include undergraduates, Master's students and PhD candidates. Some work as summer students, while others work under the supervision of the PI funded by our USGS and other grants. They represent a good cross-section of different disciplines engaged water science research. These students are the water resources professionals of the future.



Expertise

The University of Maryland, College Park, has a broad base of expertise in a large and diverse program on water science. A database maintained by the Center identified about fifty University scientists in a dozen Departments, throughout six Colleges. These faculty teach and conduct research on wastewater management, nutrients, pesticide movement, water policy issues, remote sensing, wetlands, and modeling, to mention just a few areas of expertise.

Coordination

The Center has both external and internal advisory committees. The internal committee is composed of faculty from Civil and Environmental Engineering, Biology, and Bioengineering. The external committee is composed of high ranking officials in the Maryland Department of the Environment, the Maryland Department of Natural Resources and the U. S. Geological Survey.

Cooperation

Our Center cooperates with major local research agencies. Many projects have included scientists from the Beltsville Agricultural Research Center.



Fear the Turtle