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# The Mid-Atlantic POULTRY

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## Top Story, June 14, 2011

# Effectiveness of artificial floating wetlands to be measured

By SEAN CLOUGHERTY  
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FEDERALSBURG, Md. — Measuring the nutrient removal capacity of artificial floating wetlands in stormwater containment ponds is the subject of a research project on two Eastern Shore poultry farms.

Periodically over 180 days, University of Maryland researchers will take samples of the wetland material to measure any denitrification from the collected stormwater.

Water quality samples will also be taken and measured.

The wetlands — in place on the Church Hill and Federalsburg farms in Queen Anne's and Caroline counties, respectively, for about two months — are a coarse mesh of recycled plastic similar to a filter found in many backyard landscape ponds but much larger. They can be shaped and constructed to just about any size and shape, according to Kevin Hedge, managing partner at Bluewing Environmental, who installs floating wetlands and supplied the wetlands material for the research.

Hedge said the wetlands have already been used in several settings, including wastewater treatment facilities, shoreline restoration and golf courses and can be used for nutrient removal, wildlife habitat and aesthetic improvements.

"The most common need is nutrient removal and environmental remediation because so much focus is on Chesapeake Bay restoration," he said.

Native wetland plants were planted in the floating wetlands used in the research. As the plants grow, they'll use nutrients from the water but a lot of the removal work will likely be done by the wetland material itself, by attracting bacteria to itself and forming a "biofilm" that should promote denitrification.

"To get rid of the nitrogen we really have to prove there is denitrification," said Josh Lowman, a Towson University graduate student working on the project.

The project is led by Dr. Josh McGrath, associate professor of environmental science and technology at the University of Maryland.

The research project is funded by Maryland's Department of Natural Resources Maryland Innovative



### Poultry News

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Technology Fund and administered by the Maryland Industrial Partnerships program. In the MIPs program, any scientific research proposal is considered for funding provided there are matching funds from a company seeking the research and a professor with the University of Maryland System that related expertise and an interest in the proposed research, according to Ronnie Gist, a manager in the MIPs program. "In this case, Dr. McGrath was a perfect candidate because this is his area. This is what he does," Gist said. Bluewing Environmental had submitted the floating wetlands, called Biohavens, and data it had collected on nutrient removal to the Chesapeake Bay Program to become an approved practice for nutrient removal in the ag sector. The company was told it would need more specific and independently gathered data to get further consideration. "The research community was hesitant to automatically say that those data would apply to an agricultural setting," said Sarah Lane, University of Maryland liaison to the Department of Natural Resources, who gave oversight to the funding. "That's just part of the research process." From Bluewing's data, a 250-square-foot floating island is capable of removing 152 pounds of nitrogen per year, 21 pounds of phosphorus per year and is equivalent of 1.14 acres of wetlands restoration. Hedge said he expects the university's research to further define the floating islands' potential to improve water quality. "I think it will close kind of a critical data gap for verifying nutrient removal numbers and but a local spin on the project," he said.

*(Photo by Sean Clougherty)*