

Team to test experimental floating marshland

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Credit: Southeastern Louisiana University

A relatively low-tech method of imitating a natural marshland may help clean freshwater ponds contaminated by storm water runoff, according to research being funded by St. Tammany Parish Government in cooperation with scientists at Southeastern Louisiana University and the wetlands assimilation company Comite Resources, Inc.

The effort is intended to improve [water quality](#) throughout St. Tammany through several water quality initiatives. Included is a project in the Del Sol subdivision of Covington that utilizes an innovative, low-tech method of imitating a natural marshland that will help clean freshwater ponds contaminated by [storm water runoff](#).

The \$222,000 pilot project will help the parish determine the most efficient and effective methods to retrofit other storm water retention ponds, turning them into water quality enhancers, according to parish officials.

The project is being funded by the parish and implemented by Southeastern Louisiana University wetlands expert and Biological Sciences Professor Gary Shaffer and graduate student Zach Leggett, who are working with Racheal Hunter of Comite Resources, Inc. based in Zachary, La.

"Improving water quality and our environment in the parish are crucial," said St. Tammany Parish President Pat Brister. "As we continue to research and implement the latest, most effective strategies to address pollution and storm water runoff problems, we will continue to make great strides in improving the overall quality of our water throughout the entire community. Success will also make this pilot project replicable throughout St. Tammany and mimicked throughout the country."

Rainwater runoff enters the Del Sol pond from three directions, carrying with it sediment, oils, tar, fertilizers and herbicides that accumulate in the subdivision's watershed and contaminate the pond.

Leggett and Shaffer are evaluating the cleaning effects of a man-made floating marsh in the eight-acre pond. Leggett's hands-on project is the focus of his master's thesis at Southeastern.

"The floating plants take out the excess nutrients and turbidity, or cloudiness, in the water, including fertilizers, pesticides, herbicides and other materials that can be harmful to water quality," Leggett said.

Last fall, Leggett and his team constructed a star-shaped, eight-armed frame of PVC piping with four-foot wide vinyl coated crab wire between the piping that acts as a platform and serves as a supporting structure for marsh plants, such as maidencane, arrowhead and spider lily. The plants serve as a natural filtering mechanism for the pond water lily, are attached to the netting to serve as a filtering mechanism for the pond water. The predominant water plant used in the structure is maidencane, an inexpensive plant that is easily propagated in Southeastern's greenhouses before being transplanted into the frame.

"The maidencane roots are full of gas, so the plants tend to float on top; this makes it ideal for this kind of structure," explained Shaffer.

"Maidencane is a good plant for this purpose; the roots grow about 20 inches deep and suck up the excess nutrients in the water and help clean the pond. As an added benefit, the structure also becomes a huge refuge for small fish and other species.

While water quality tests are only in the early stages, Shaffer said the pond has become much clearer with a huge reduction in turbidity, or cloudiness. In addition, he said, the frames are full of minnows and juvenile fish, which greatly improves the ecosystem function of the pond and eventually will lead to excellent fishing conditions.

"We expect the turbidity and nutrient levels at the site will be significantly reduced, which means we would be successful in our efforts to remove the contaminants and clear the water," said Leggett.

"And it would tell us whether maidencane is the ideal plant for this process."

Hundreds of ponds in St. Tammany Parish are in need of water quality improvement, according to parish officials. The parish's floating marshlands project, if successful, will play a significant and relatively inexpensive role in improving water quality.

The research project and its final report are expected to be completed in 2017 after the plants have completely covered the platform.

Provided by Southeastern Louisiana University

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