



Del Sol Subdivision Floating Wetland Project

The Louisiana Department of Environmental Quality (LDEQ) has designated several streams and rivers within St Tammany Parish as impaired. The source of impairment is predominantly excessive nutrients and fine sediment.

Part of the Parish response, or “Action Plan”, to address stormwater impairments is to implement a series of demonstration projects to test Best Management Practices (BMPs) by retrofitting existing stormwater detention ponds into water quality ponds. While the detention ponds currently serve their purpose for storing stormwater, they could be used as an effective treatment tool for stormwater pollutants. Existing literature on BMPs suggests that retrofitting the ponds into water quality ponds should improve water quality in the respective receiving streams by removing oxygen-demanding substances by 40% to 100%.

The BMP being tested in the parish-owned stormwater detention pond located in Del Sol Subdivision is a Floating Wetland designed and constructed by Comite Resources and Dr. Gary Shaffer’s team from Southeastern LA University. Floating wetlands mimic natural habitats for transforming nutrients and other pollutants into forms that are useful for other organisms. This is essentially the science of bioremediation.

Three years ago the Del Sol stormwater detention pond appeared alarmingly sterile, with no sign of minnows (mosquito fish), no submerged vegetation near the bank, and a veil of mosquitos that prevented walking near the outfall. Dr. Shaffer’s research team from SLU has constructed the Del Sol Floating Wetland for removal of fine sediment particles as a prototype for this type of water quality improvement. Aerators are good for degrading organic material and nutrients, but would have been ineffective in reducing concentrations of fine sediment that were clouding the pond.

Dr. Shaffer’s notes from June 8, 2016:

My team has recently moved several of the extensions to the back of the pond and created a new arm, such that the system is more compact. To adequately clean the pond, the wetland must maximize the probability that water interacts with the marsh.

The “UV-protected “zip ties” that generally last 5 to 7 years on bald cypress plantings are popping in less than a year. Consequently, the fencing that holds the plants in place is partially sinking and the plants are in deeper water than they are designed for. To

address this we are replacing the zip ties with 100 lb. test braided Spider Wire and boat line and those should hold up well.

We have already planted 400 new maidencane and 50 flowering plants (iris and swamp lily). Next week we will replant the structure with 500 more maidencane and 50 more flowering plants. We also will add sods obtained from the field that should transplant very well.

We are having a serious herbivore problem with the geese. Hopefully once the structure has enough plants on it the geese won't be able to keep pace with the productivity of the plants.

The platform is like a 4"-deep pond with no fish predators; all cells are loaded with minnows and juvenile fish, greatly improving the ecosystem function of the pond which will lead to excellent fishing conditions.

The constructed floating marsh is the first of its kind and is drawing national attention. We also will publish an international manuscript on this system. This is a very exciting project and we will get it right; my team never gives up.

The Del Sol Floating Wetland project is incredibly important. Its development as a tool for water quality improvement, habitat, and as an amenity to the subdivision has been a work-in-progress that will benefit the entire Parish. The project is of great interest to the Parish, LDEQ, EPA and the scientific community as a whole. Water quality data gathered during the three-year study will be utilized for Parishwide planning, and reported to the International Stormwater Database (quantifying removal of nutrients, bacteria and fine particulates from stormwater runoff). Dr. Shaffer's team also plans to publish its conclusions and "lessons learned" in international scientific journals.

We appreciate your patience and understanding as we work to solve serious issues with our Parish's water quality, and plan for the future by setting high standards for our environment and natural resources.

Sincerely,

