**EM-12 Improvement of Water Quality through Storm Water Management**

OBJECTIVES

1. To reduce the negative impacts on water quality that current storm water disposal practices may produce.
2. To reduce loadings of nutrients, fecal coliform bacteria and pathogens, and other pollutants in waterways.
3. To enhance wetland vegetation with inputs of nutrients, sediments, and freshwater from stormwater runoff.

BACKGROUND

Storm water pumps exist throughout the BTES. A report for the BTNEP by the Center for Louisiana Inland Water Studies (CLIWS) states that there are 256 identified pumps within the basins. Storm water pumps account for 215 of these and 41 are classified as agricultural pumps. The majority of storm water pumps drain residential, commercial, or industrial areas. The agricultural pumps drain crop agriculture, pasture land, and cattle operations. The large area of the BTES provides an opportunity to actively manage all or part of storm water runoff that would not be provided by gravity-based drainage systems alone.

Much of the developed and impounded wetlands (fastlands) for residential, commercial, and agricultural use in the BTES complex are under pump to remove storm water. The storm water pumps move water off the fastlands into receiving water bodies which move water rapidly into shellfish producing areas. , As a result, there is inadequate detention time to reduce coliform bacteria levels before oyster beds are impacted. The intent of the pumping is to alleviate flooding in developed lands. Per the CLIWS report, most of the water bodies receiving the pumped waters could not be classified by type. However, of the few receiving water bodies that could be classified (48 total), 44% were canals flowing through some type of wetland, 25% were canals through other areas, and 31% were wetlands. The pumped water, including all of the pollutants and nutrients that may be present, enter these water bodies directly.

The storm water pumping system that exists in the BTES complex directly or indirectly impacts all residents of the basins. The direct impact of the existing system is the removal of storm water from developed or agricultural areas to receiving waters that should be able to shunt the storm flows away, thus lowering the incidence and duration of flooding. Indirect impacts of the existing system are the potential and actual impairment of water quality in the receiving water bodies, and the impact this impairment has on drinking water supply, fisheries, and recreation. The Storm Water Action Plan will impact all residents of the BTES complex by reducing negative impacts in several ways: reduce loadings of nutrients, fecal coliform bacteria and pathogens, and other pollutants in waterways; and enhance wetland vegetation with inputs of nutrients and freshwater.

BTNEP has implemented two projects that could be used to decrease stormwater being delivered to receiving waterbodies and fisheries growing areas.

In 2016, BTNEP implemented a project entitled, “Stormwater Infiltration Basin and Pétanque Terrain” in Peltier Park in Thibodaux, La. The project constructed a stormwater infiltration basin that also has a surface for playing the game of pétanque. This project was designed as an alternative way to decrease stormwater discharge to streams, increase groundwater recharge, provide a double use of greenspace, provide recreational benefits to the community and provide local economic benefits. It is estimated that the feature can hold approximately 8,600 gallons of stormwater.

In 2010, BTNEP, in partnership with TPCG and LSU completed a two-phase study entitled, “Wetland Response to Stormwater Discharge at the Pointe au Chien Pumping Station, Pointe aux Chenes Wildlife Management Area, Terrebonne Parish, La,” which collected pre-pumping data and post-pumping data for loading of nutrients, fecal coliform bacteria and sediments and wetland response at the Pointe au Chien pumping station. The study found that there was a significant decrease with distance of nutrients, fecal coliform bacteria and sediments with distance from the pumping station outfall and a significant increase in wetland areal coverage near the outfall of the pumping station.

This action plan complements several BTNEP programmatic goals. It uses existing infrastructure, with some modifications, to adjust, offset, or be compatible with natural processes. This action plan helps provides a common ground solution to several estuarine problems including water quality, and helps to revitalize wetland areas.

This action plan will provide several benefits to the BTES complex residents. Improved coordination and sharing of information and ideas among local, state, and federal agencies and the public should result. Flexible storm water disposal can help strengthen local governments ability to identify and reduce local problems like flooding, water quality, wetland and resource health through their own initiatives. More long-term benefits will be improved water quality for drinking, agriculture, fisheries, and recreation. Enhanced wetland areas should result; more able to provide the functions of water storage, water quality improvement and ecological values that wetlands impart.

DESCRIPTION

This action plan will establish alternatives to current storm water pump outfall management. Specifically, this plan will encourage, develop and implement a series of storm water treatment and wetland enhancement projects in representative areas throughout the BTES, sponsor additional information collection that would assist in local storm water management planning, encourage local governments to adopt ordinances that improve storm water disposal practices, and ensure that to the extent possible, storm water management improvements make use of equipment that is already in place. Storm water disposal alternatives will be planned where they can help reduce flooding, where existing pumps and appropriate alternative disposal sites coexist, and where fecal coliform impacts on oyster beds or other negatives, are unlikely. Most importantly, alternative storm water management will be implemented only where the water quality of the storm water is acceptable for the wetland to assimilate its pollutant load over an adequate residence time.

LEAD AND SUPPORT IMPLEMENTORS

Stormwater Redirection Projects

Co-Lead Implementors would be BTNEP and Local Parish Governments. Either BTNEP program office or local Parish Govenrments would be able to apply for large grants. Local Parish governments would be responsible for construction.

New Pumping Stations

For new pumping stations, no drainage canal for collecting pumped stormwater would be dug. The stormwater outfall would go directly into receiving wetlands.

Existing Pumping Stations

1. An earthen dam would be constructed across the existing outfall canal forcing stormwater to sheet flow over adjacent wetlands
2. The outfall pipe would be relocated so that stormwater would flow directly into wetlands adjacent to the original outfall canal