

ACTION PLAN *Water & Sediment Quality*

WW-1

Identify Septic and Municipal Wastewater Loading to Lake Worth Lagoon and associated watershed

ACTION:

Identify and evaluate loading rates associated with sewage spills, septic systems, small wastewater treatment plants, and the potential loading from expanded land application of reclaimed water within the area surrounding the Lake Worth Lagoon (LWL).

BACKGROUND:

Nutrient levels and bacteriological contamination within the LWL continue to be a priority in this AP. By identifying the sources and locations of potential nutrient and bacteriological contamination, strategies can be developed to assess impacts, evaluate reduction options and implement improvements when justified. Some progress has been made on this AP since 2008. Two facilities discharging raw sewage into the LWL were discovered and required to connect to the existing sanitary sewer systems. The AP will continue to focus on wastewater discharges and disposal associated with the following:

- Direct releases of untreated sewage as a result of an aging sewer infrastructure system and storm related events.
- Seventeen (17) small domestic wastewater treatment plants operating within the area and the two that are authorized to discharge treated effluent directly to the LWL via the Spanish River.
- Areas around the LWL that remain on septic systems for wastewater treatment and disposal with no sewer option.
- Increased use of reclaimed water and treated effluent for landscape irrigation within the area surrounding the LWL, including direct discharge into stormwater management lakes.

In 2009 the Department of Health (DOH), at request of the Florida Legislature, conducted a study that inventoried locations of known septic tanks in each County using their existing databases associated with septic tank permitting, as well as information gathered from the collection systems for wastewater treatment plants regulated by the Department of Environmental Protection (DEP). This study was a snapshot intended to be used as part of a larger management program for septic systems. The management program was established in 2008; however the scope of the program was reduced in 2012

with the emphasis on protecting Florida's springs within specific counties. The DOH's inventory was used to produce a relational database with individual septic tank locations identified. Additional work would be useful to refine the GIS map around the LWL to validate and update the wastewater disposal information. Reclaim water use locations need to be mapped. Additionally, stormwater management lakes receiving reclaimed water and reclaimed water land application sites need to be mapped. Correlations between water quality, domestic wastewater treatment plants, septic tanks and reclaimed water use and their effects on the environment need to be studied. Currently FDEP and SJRWMD are working on a project to understand the possible effect of reclaimed water application to the environment regarding Nitrogen. This study could provide useful information potentially applicable to the LWL.

Bacteriological contamination at some level is common in all surface waters. Sources of the contamination include stormwater contaminated with wildlife and domestic animal waste, releases of untreated sewage from the aging sewer infrastructure system through leaking/broken pipes and overflows, and the release, either directly or indirectly, from wastewater plants, septic systems and the pathogenic contamination of reclaimed water. The AP calls for a review of current knowledge regarding the environmental impacts of these sources and identification of the appropriate actions to be taken. The actions may include additional source tracking and/or epidemiological studies to quantify the human health risks associated with the levels of contamination within the LWL. Once problem areas or sources have been identified, it may be appropriate to survey for a variety of traditional and alternative indicators, including bacteriological source tracking, sucralose, coliphage testing (for the presence of viruses and indication of recent fecal pollution) and direct pathogen monitoring for viruses and parasites as the sampling technology allows.

STRATEGY:

STEP 1 Update ArcGIS files to show areas where sanitary sewer has been installed, areas where only septic tanks are in use and mixed areas where sanitary sewer has been installed and the use of septic tanks is being phased out. Also map areas where reclaimed water is being land applied within the watershed. Compile data into spatial database.

Potential Partners: ERM, FDOH, PBCHD, FDEP, PBC Utilities, and Municipalities

STEP 2 Implement a bacteriological assessment of the LWL and associated watershed to identify areas where contamination levels are above surface water quality standards or at levels classified as "Poor" under the U.S. Environmental Protection Agency's Healthy Beaches Program.

Potential Partners: ERM, FDOH, PBCHD, PBC Utilities, HBOI/FAU, EPA, and Municipalities

STEP 3 Evaluate sources that discharge wastewater directly or indirectly into LWL, quantify levels, and develop reports detailing sewage spills, wastewater plant

discharges and estimated septic system discharges and land application of reclaimed water usage within the LWL area.

Potential Partners: *ERM, FDEP, FDOH, PBCHD, PBC Utilities, and Municipalities*

STEP 4 Generate recommendations, based on steps 1-3, for sewer utilities to upgrade or replace aging sewer infrastructure and expand sewer coverage into areas with large concentrations of septic systems. Generate recommendations for land applied reclaim water in specific areas where it is a contributing factor for pollution.

Potential Partners: *ERM, DOH, PBCHD, PBC Utilities, FDEP*

SCHEDULE:

Step 1 – 6 Months from Project Initiation.

Step 2 – 24 Months from Project Initiation.

Step 3 – 18 Months from Completion of Step 1.

Step 4 – 6 to 12 Months from completion of Steps 2 and 3.

COST:

Step 1: \$25,000. Labor

Step 2: \$225,000. Labor, Equipment, Materials, and Laboratory Support.

Step 3: \$45,000. Labor and Materials.

Step 4: \$10,000. Labor and Materials.

Total Cost: \$305,000.

EXPECTED BENEFITS:

Assess the nutrient and bacteriological contamination levels within the LWL, identify sources contributing to the contamination and identify potential corrective actions where needed. Ultimately, these sources can be reduced and/or eliminated reducing nutrient and bacteriological/pathogenic input to receiving water bodies thus improving the overall quality of the LWL and reducing public health risks.

MONITORING ENVIRONMENTAL RESPONSES:

Data will be collected, analyzed and integrated with the existing water quality monitoring program.

REGULATORY NEEDS:

Not applicable.

FUNDING:

Funding sources need to be identified. The Pollution Recovery Trust Fund (PRTF) and DEP grants or loans could be considered for some of these steps. NOAA FACE monitoring program has funded some monitoring and analysis at SLWI and expansion of that work should be considered.

POTENTIAL PARTNERS AND FUNDING SOURCES*:

***PBC, FDEP, DOH, PBCHD, EPA, SFWMD, HBOI/FAU, NOAA FACE Program,
Local Municipalities.***

*Listed Agencies have not committed funds and are subject to Agencies' budget approvals