



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Noah Valenstein
Secretary

Sent via ePost

January 19, 2018

Subject: Palm Beach County Municipal Separate Storm Sewer System (MS4)
NPDES Permit No. FLS000018-004
Lake Ida WBID 3262A Targeted Water Quality Monitoring Plan and Approval

Thank you for submitting the Targeted Water Quality Monitoring Plan for WBID 3262A, Lake Ida, for nutrients as required by Parts VIII.B.2.c of your permit, received August 23, 2017.

The Department approves the Targeted Water Quality Monitoring Plan. Future due dates:

Report	Permit Requirement	Due Date
Monitoring Summary	Year 3 ANNUAL REPORT	March 31, 2020
Supplemental SWMP	Year 4 ANNUAL REPORT	March 31, 2021
TMDL Status Report	Annual Report Section IX	Each Annual Report

If you have any questions, please feel free to contact me at Michelle.Bull@dep.state.fl.us or (850) 245-7561, or Borja Crane-Amores at (850) 245-7520
Borja.CraneAmores@dep.state.fl.us.

Sincerely

A handwritten signature in blue ink that reads "Michelle Bull".

Michelle Bull
NPDES Stormwater Program

Addressees: Mr. Colin Groff, P.E., City of Boynton Beach
Marjorie G. Craig, P.E., City of Delray Beach

CC: Angela Prymas, City of Boynton Beach
Jeff Needle, City of Delray Beach
Alan Wertepny, Mock-Roos

Water Quality Monitoring Plan for Lake Ida

Palm Beach County's NPDES Permit FLS 18-00 4

This document is intended to outline the Targeted Water Quality Monitoring Plan to satisfy Palm Beach County's NPDES permit FLS 000018-004 requirements due to Lake Ida's listing as a receiving water body with Total Maximum Daily Load (TMDL) exceedances. Lake Ida receives stormwater discharges from four (4) MS4 systems and several other watersheds within unincorporated Palm Beach County.

A targeted water quality monitoring plan is being proposed instead of storm event monitoring plan in order to establish ambient water quality conditions in Lake Ida. It should be noted that the four (4) MS4s discharge into Lake Ida directly, the City of Boynton Beach, the City of Delray Beach, Palm Beach County in the East, and FDOT in the west. Of these 4 MS4's, the contributions from Boynton Beach and Delray Beach make up only 10.1% of the total contributing watersheds discharging into the Lake (See attached Sub watershed I). The majority of stormwater water received by this lake comes from private development permitted by South Florida Water Management District into the Lake Worth Drainage District's (LWDDs) drainage network.

The Specific elements required for a Targeted Water Quality Monitoring Plan are as follows:

1. **Current Estimates of Annual Nutrient Loadings to Lake Ida** will be obtained through the hydrologic modeling efforts of NOAA. (Activity 1.3 of the NOAA scope)
2. **Identifying major sources of the nutrients discharging into Lake Ida.** The sources are a combination of urban and agricultural stormwater containing phosphorus and nitrogen from fertilizers along with legacy nutrients from agricultural uses dating back to the early part of the 20th century. This will be fully developed under the NOAA effort (Activity 2.1 of the NOAA scope).
3. **Determining the change in health of Lake Ida over time** will involve an evaluation of the existing data available. There are eight years of data available in the Impaired Waters Rule (IWR) database that will be analyzed to determine the level health of Lake Ida. Evaluating the nutrient levels including the number of exceedances, the length of those exceedances, the type of exceedances, a comparison of nutrient levels in similar lakes in south Florida will assist in determining the condition of Lake Ida and impact of the TMDL exceedances to the Lake.

A literature search may find biological studies on this Lake or other similar lakes in the region to establish a baseline for habitat and a relationship between nutrient levels and the health of shallow lakes in South Florida.

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4. **Monitoring at the prioritized outfall:** MS4 Monitoring Strategies - Outfall vs Targeted (ambient) monitoring.

Part V of the most recent version of the MS4 permit for Palm Beach County (FLS000018-004) calls for the creation of an assessment program to determine the overall effectiveness of the SWMP. This Assessment Program needs to include a water quality monitoring program intended to identify where local sources of urban stormwater is adversely affecting surface water resources. This program allows the permittee to design an appropriate plan as long as they can demonstrate the program can assess changes in the SWMP.

Part VIII of the same permit also requires a monitoring plan strictly for TMDL waterbodies. The permit prescribed sampling calls the collection of seven (7) storm event flow weighted composites at the priority outfall of concern OR a targeted monitoring program of the receiving waters and at the priority outfalls.

Outfall monitoring is relatively more costly, inefficient and highly uncertain. It is inherently difficult to develop representative loads from different storm events and different antecedent conditions. There is a very distinct difference between stormwater outfall monitoring and regular point sources where flows are relatively constant. Targeted monitoring is more holistic approach as the purpose of stormwater management is designed to protect the entire receiving waterbody.

The proposed plan will be to perform Targeted (ambient) Water Quality Monitoring in Lake Ida. The Pinellas County Water Quality Ruling allows water quality of a receiving water body to be defined through targeted water quality sampling to establish ambient water quality. In fairness to the 2 MS4s that currently are responsible for executing the monitoring plan, only 16.2% of the water into the Lake comes from the four (4) existing MS4s and more specifically, the contributions from Boynton Beach and Delray Beach make up only 10.1%. The monitoring plan will include sampling locations where LWDD's E-4 canal enters Lake Ida from the north and from the south along with LWDD's L-30 lateral entering at the Middle West side of the Lakes Eden and Ida. A description of the water quality monitoring plan will be described in section #6.

5. **Monitoring within Lake Ida shall include biological and sediment monitoring if appropriate to the pollutant of concern.** Monitoring shall take place in Years 2-3 of the permit cycle starting in the next fiscal year, FY2018. The permittee will evaluate the appropriateness of biological monitoring based on findings in a literature search under section #3. The biological monitoring may include Lake Vegetation Index analysis to help in establish the condition of the Lake.

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While biological monitoring may be helpful to determine the current health and condition of Lake Ida, sediment sampling does not seem appropriate due to the high level of uncertainties involved in sediment movement (vertical and horizontal) in shallow lakes. This lake averages 10 feet depth with a maximum depth of 20 feet, in addition to three (3) large secondary canals entering this 133 acres lake at the north and south ends, as well as in the middle. There is considerable disturbance of the lake bed during storm events and recreational boating. The uncertainty involving the sediment transport would likely leave more questions than answers. Though the legacy nutrients left in the sediments from early years of agricultural discharges from the LWDD canal network, established in 1915, has undoubtedly impacted the current nutrient levels in the Lake's sediments.

6. **Monitoring Plan Description** includes: the monitoring locations, methods of monitoring at each location, monitoring frequency, and D) a narrative detailing the monitoring plan's ability to evaluate changes in stormwater pollutant loadings and water body health over time.

A) The Monitoring Locations are depicted on Exhibit 1. (attached)

B) Methods of Monitoring will be **Grab Samples**.

C) Monitoring Frequency will be **Quarterly**.

D) Monitoring Parameters will include: **TP, TN, Chlorophyll A** and physical parameters such as **temperature, pH, conductivity** and **dissolved oxygen (DO)**.

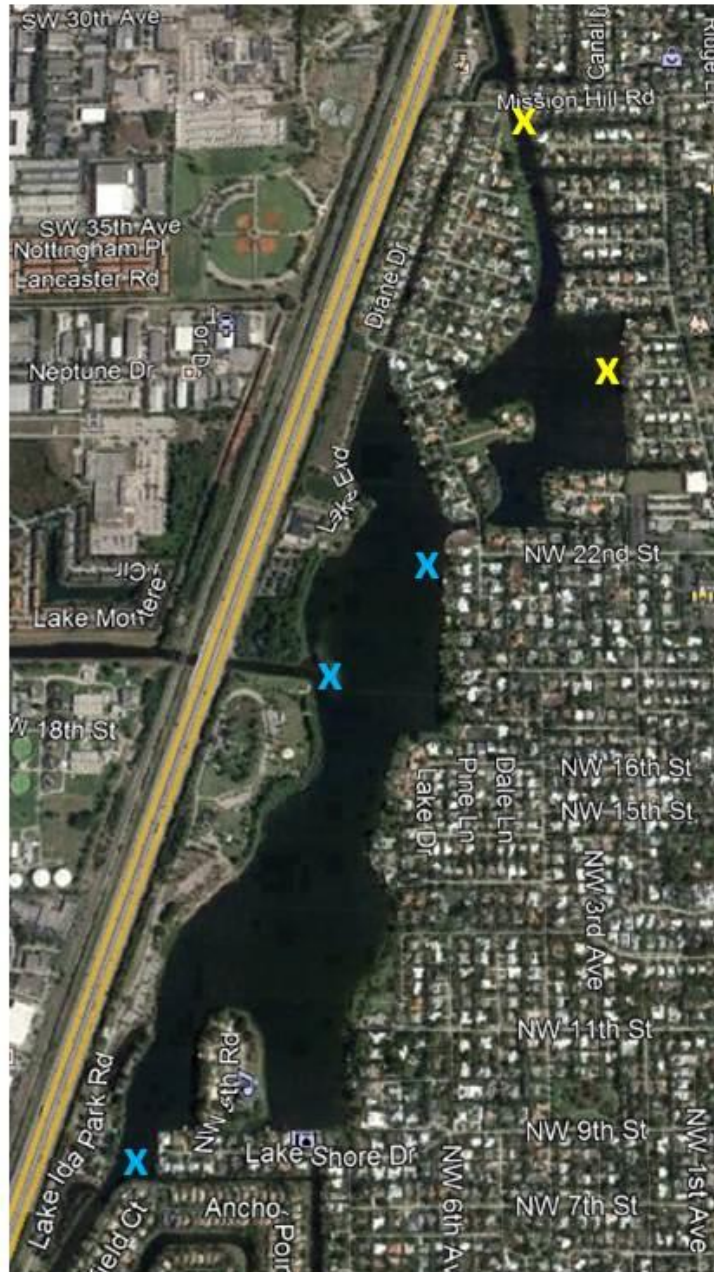
The sample collection will be performed by a certified laboratory with the State of Florida and will be collected by licensed technician using approved procedures including collection technique and proper chain of custody.

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Exhibit 1

Targeted Water Quality Monitoring Locations for Lake Ida



- Monitoring Locations City Of Delray Beach X
- Monitoring Locations City of Boynton Beach X