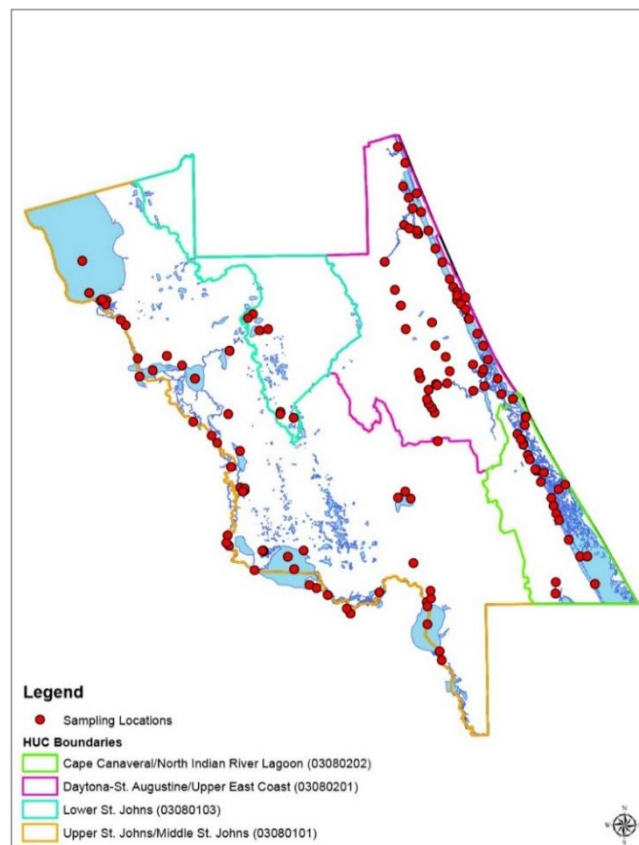


## Water Quality History of Volusia County Environmental Management’s Water Quality Program

Volusia County Environmental Management (VCEM) began collecting and analyzing water samples in Mosquito Lagoon in 1988 to determine trends in water quality and to ascertain improvements or decline in the overall environmental health of Volusia’s waters. A laboratory was established, combining staff from VCEM and the Volusia County Department of Health (DOH) to analyze water samples. Shortly after implementing the sampling program in the lagoon, the county initiated sampling plans in the St. Johns River and the Halifax River, followed by the Tomoka River, Spruce Creek, Rose Bay, and finally the springs in the county. Partnering with Volusia County Public Works department, VCEM added additional water sampling locations at strategic drainage points where water discharge and velocity are also measured. Although the county laboratory permanently closed in 2014, the sampling program continues, and samples are now analyzed by the St. Johns River Water Management District (SJRWMD). VCEM works closely with SJRWMD and Florida Department of Environmental Protection (DEP) to monitor water quality at nearly 100 locations across the county. VCEM priorities include sampling water at specific locations in a routine fashion to maintain an adequate sample set for diagnosing problems and determining trends to safeguard this precious resource. Samples are collected on a routine schedule – monthly, bi-monthly, or quarterly each year.

### Water Sampling Locations in Volusia County



Based on SJRWMD and DEP hydrologic data, Volusia County has four major watershed basins referenced as Hydrologic Unit Code (HUC) basins. These four basins are further divided into smaller sections or Water Body Identification (WBID) segments. Over 200 WBIDs have been named in Volusia County. The four main basins including some of their segments are:

Upper East Coast Basin (aka Daytona-St. Augustine or Northern Coastal Basin):

- Halifax River
- Tomoka River
- Spruce Creek
- Rose Bay

North Indian River Lagoon Basin (aka Cape Canaveral):

- Mosquito Lagoon
- Turnbull Creek south

Middle St. Johns River Basin (and Upper St. Johns):

- St. Johns River from Lake George to just south of Lake Harney
- Lakes George, Dexter, Woodruff, Beresford, Monroe, Harney, Winnimissett, Ashby
- DeLeon Spring
- Blue Spring
- Gemini Springs
- Green Spring

Lower St. Johns River Basin:

- Lakes Dias, Talmadge, Winona, Lindley, Blue Lake
- Little Haw Creek

VCEM staff enter field data and lab results into the state's Water Information Network (WIN) database. The information shared by VCEM and other agencies help state and federal scientists evaluate the data and determine if water quality standards are being met. If waters are deemed impaired, efforts are made to improve the water quality by reducing the amount of pollutants (generally nitrogen and phosphorus) to restore waters to their original classification. The state of Florida has classified all waters according to their use. Nearly all of the waters in the county are classified Class III (for fish consumption, recreation, and propagation and maintenance of a healthy and well-balanced population of fish and wildlife). Volusia County also has some Class II (shellfish propagation or harvesting) waters in, as well as some Outstanding Florida Waters (OFW) which have more stringent protection and restricted impacts from development.

Areas exhibiting poor water quality as indicated from field data and lab analyses are studied to determine the reason for the impairment, and may lead state and federal officials to institute a Total Maximum Daily Load (TMDL). A TMDL is a determination of the maximum amount of a given pollutant that a water body can withstand and still meet the water quality standards that protect human health and aquatic life. Once a TMDL has been developed and adopted by the Secretary of DEP, stakeholders within watershed boundaries of the impaired water body are required to reduce the pollutant(s) to improve the overall water quality through a Basin Management Action Plan (BMAP). This plan is designed to implement ways of reducing pollutant loads based on the reductions established by the TMDL. Water quality monitoring by VCEM is vital to both the TMDL and BMAP processes.

### Current TMDLs and BMAPs in Volusia County

Adopted TMDL	WBID(s)	Pollutant(s)	Volusia Waters Affected	Date TMDL adopted	Date BMAP adopted
Spruce Creek	2674	Fecal Coliforms	Spruce Creek - western section	March, 2008	
Spruce Creek	2674A	Dissolved Oxygen and Nutrients (TN & TP)	Spruce Creek - eastern section	April, 2008	
Indian River Lagoon and Banana River Lagoon	multiple	Nutrients (TN & TP)	Turnbull Creek in Oak Hill	March, 2009	February, 2013
St. John's River between the Inlet of Lake Harney and downstream of Wekiva River	2964, 2964A, 2893C, 2893D, 2893E, 2893F	Dissolved Oxygen and Nutrients (TN & TP)	St. Johns River from Lake Harney to Wekiva River	December, 2009	August, 2012
Tomoka River (Fresh Water)	2634	Nutrients (TN & TP)	Tomoka River, fresh water section	May, 2013	
Halifax River	2363B	Nutrients (TN & TP)	Halifax Harbor north to Tomoka basin	July, 2013	
Tomoka River (Fresh Water)	2634	Nutrients (TN & TP)	Tomoka River, fresh water portion	May, 2013	
Blue Spring and Blue Spring Run	28933 & 28933A	Nutrients (Nitrate)	Blue Spring and the Spring Run	July, 2014	June, 2018
DeLeon Spring and Gemini Springs	2921A 2893	Nutrients (Nitrate)	DeLeon Spring and Gemini Springs	June, 2017	June, 2018

An alternative to the TMDL-BMAP process is a Reasonable Assurance Plan (RAP). This plan, if adopted by state secretarial order, is developed prior to and in place of a TMDL. Local stakeholders plan, design, and implement restoration activities and projects toward attaining water quality standards for the impaired water segment(s). The RAP encompasses pollutant concentrations and load-based targets to be achieved by the partners included in the plan.

In June, 2014, after several years of catastrophic algae blooms in Mosquito Lagoon, a Water Quality Workshop was hosted by Volusia County Council, and the discussion of a RAP for Mosquito Lagoon began. Plan sponsors including the City of Edgewater, City of New Smyrna Beach, City of Oak Hill, Florida Department of Transportation (FDOT), and Volusia County developed joint projects agreements, and the Mosquito Lagoon Reasonable Assurance Plan was adopted by secretarial order in September, 2019.

**Growth and Resource Management Department**  
**Environmental Management**  
 123 West Indiana Avenue • Room 202 • DeLand, FL. 32720  
 Phone (386) 736-5927 • Fax (386) 740-5193  
[www.volusia.org/environmental](http://www.volusia.org/environmental)