

History of Water Quality Sampling by VCEM

Volusia County Environmental Management (VCEM) records of surface water sampling date back to October, 1988.

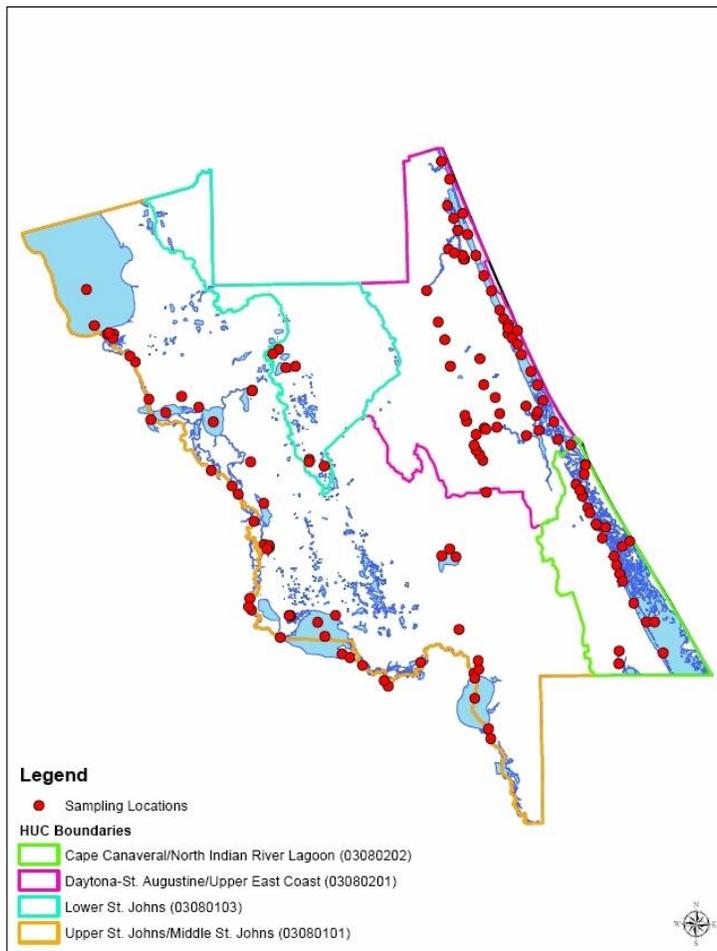
Volusia County's waters have been classified according to their use (recreational, shellfish harvesting, etc.) and water quality (DEP 62-302). Our county also has some Outstanding Florida Waters - water bodies having more stringent protection and restricted impacts from development.

Based upon SJRWMD and DEP watershed boundaries, Volusia County has 4 major watersheds:

1. Upper East Coast (aka Daytona-St. Augustine or Northern Coastal Basin: includes Halifax River, Tomoka River, Spruce Creek and Rose Bay)
2. North Indian River Lagoon (aka Cape Canaveral: includes Mosquito Lagoon and Turnbull Creek south)

3. Middle St. Johns (and Upper St. Johns: includes Deep Creek, all springs, and waters from Lake Harney to Lake George)

4. Lower St. Johns (includes Little Haw Creek, Lakes Winona, Diaz, Lindley, and Talmadge)



All data is sent to a state and national database (STORET) and agencies including the SJRWMD, EPA, and DEP use the information VCEM provides (along with that of other agencies) to determine impairments of our water bodies. State scientists use various models to evaluate the data from years of sampling to determine pollution levels and necessary reductions in those pollutants to restore water bodies to their original classification. The data we provide is vital to this process. Total Maximum Daily Loads (TMDLs) are formulated, and Basin Management Action Plans (BMAPs) are developed with other stakeholders in the pollutant reduction process.

In January 1990, Volusia County Council appointed the Halifax River Task Force to guide the clean up of the Halifax River and its tributaries. The Task Force's Water Quality Subcommittee

along with the cities of Ormond Beach, Holly Hill, Daytona Beach, Port Orange, VCHD, and VCEM, was to design and implement a water quality program to:

1. Characterize the existing water quality of the Halifax River, Tomoka River, and Spruce Creek.
2. Identify pollution sources,
3. Propose management options to restore this important estuary.

In order to accomplish this goal, it was imperative that water quality sampling and analysis produce reliable and comparable data by utilizing standard methods, procedures and equipment.

Sample locations were selected based on potential pollution sources (these may have been relative to stormwater outfalls and known waste water treatment plant discharge locations), in addition to some areas that had historic data for comparison reasons. Some stations occur near marinas. Some stations are in a more pristine or less developed area of a water body to compare developed and non-developed areas.

Sampling of the Halifax River, Tomoka River, Spruce Creek and Rose Bay began monthly at 31 stations in December, 1991, was reduced to quarterly sampling in January, 2000, and has continued quarterly to present. The City of Daytona Beach has shared in both the collection and processing of samples for this project. Although sampling was reduced to quarterly collections, the City of Daytona Beach continues to collect samples at 8 stations in the Daytona Beach region of the Halifax River.

Water quality data on the St. John's River can be traced back to January, 1991 with 29 sampling points sampled on a monthly basis through 1999. Since January, 2000, these stations have been sampled on a quarterly basis. Samples have been collected at the springs (Blue, Deleon, Gemini, and Green) since May, 2000, and continue to be sampled on a monthly basis.

VCEM has been collecting and analyzing water in Mosquito Lagoon since October, 1988. Samples from 12 stations were collected monthly through December, 1999. In 1996, an inter-agency implementation began with the SJRWMD to conduct monthly water quality sampling in the Mosquito Lagoon (the SJRWMD had been collecting samples since 1988). Several stations being monitored previously by VCEM are now being analyzed by the SJRWMD, cutting lab costs, in addition to receiving some funding for the collection. VCEM has continued to collect and process samples from its original project in Mosquito Lagoon on a quarterly basis.

For the larger projects: Halifax River, Mosquito Lagoon, and St. Johns River, reductions in sampling frequency began in 2000 due to economics, and from a statistical standpoint, quarterly sampling values compared with monthly values was non-significant. Monthly sampling continues at the springs and for several storm water projects. Some collections are dependent on adequate water levels and rainfall.

Additional sampling has included lakes Diaz, Winona, Talmadge, and Lindley during 2007 when VCEM shared collecting samples in the Middle and the Lower St. Johns River basins as part of a concentrated effort by DEP to include multiple stations in these watersheds.

Water samples were collected and analyzed from May, 2002 through March, 2010 near Tomoka State Park as part of a manatee protection project to aid in determining if water quality there has contributed to multiple perinatal manatee deaths in that area.

Other water quality projects include Volusia County's Stormwater division, Florida State Parks and Volusia County Parks. The following are projects that were requested by our stormwater division, some of which are on-going:

- Deep Creek: at Maytown Road, Lake Ashby, Boy Scout Camp Road
- Lake Gertie
- Trails West tennis courts – flooding
- Lakes Mitnik and Doyle – flooding
- Various lakes: Gertie, Ruby, Emporia, Beresford, Neil, Patterson, Byron, Miller
- Riverbreeze Park Storm water Project (5 stations)
- Augmentation: Whitehair Bridge, French Ave, Debary Plantation WWTP, Highbanks Rd, Lake Monroe Park
- Halifax Plantation Reverse Osmosis: Korona Canal, Strickland Canal, Lakes 1 & 2
- TMDL Deep Creek watershed & Mid SJR: DC3, DC4, Cow Creek, SJ4, SJ5, SJ47A
- TMDL in the North Indian River Lagoon: TC1, TC2, ODIX
- B-19: Madeline, Taylor Rd, Willow Run
- B-21 bacteria: Samsula, Pioneer Trail, Lacey Ln, Spruce Creek Fly in, Sand Creek, Spruce Creek Covered Bridge
- Marsh Restoration at Mosquito Lagoon Aquatic Preserve

Our priorities for water sampling is monitoring our waters in a routine fashion to maintain an adequate sample set size for diagnosing problems – for seeing trends, whether in improvements or decline, to safeguard this precious resource. The frequency of sampling cannot be less than once per quarter; however we may be able to reduce the number of stations we currently sample if there are multiple stations within a water body segment as outlined by DEP. In most cases, it is more beneficial to have greater frequency of sampling than just quarterly. This should be considered on a case by case basis.

Sampling for macro invertebrates as another indicator of water quality and is being considered, resources permitting, as an additional method of sampling to support water chemistry data. This Stream Condition Index sampling has been beneficial to scientists reviewing data to create TMDLs and improvements to water quality in other Florida streams and estuaries.