



What does the Natural Resources Environmental Laboratory Test for?

Lee County Natural Resources Monitoring Programs

Lee County Natural Resources has three major monitoring programs and several smaller ones, which are coordinated by the Lee County Environmental Laboratory. The laboratory collects and analyses samples from Lee County waterways to support the monitoring programs.

Watershed Monitoring Program

The largest program, the watershed monitoring program, is incorporated into Lee County's municipal separate storm sewer system (MS4) permit, which is issued to the County by the Florida Department of Environmental Protection (FDEP). Samples are collected at one or more fixed locations on most freshwater rivers, creeks, and canals. Samples are collected monthly and are analyzed for:

- Nutrients, multiple forms of phosphorus and nitrogen. (Nitrogen and phosphorus are the primary ingredients of fertilizer and are required in low concentrations for a healthy aquatic system; higher concentrations will cause excessive growth of undesirable attached algae on aquatic plants and suspended or floating algae in the water).
- Metals and Minerals (heavy metals such as lead, chromium and arsenic are toxic to many aquatic organisms. Minerals like calcium in low levels are required for aquatic organism health and growth)
- Chlorophyll (chlorophyll is a measurement of how much algae is in the water, or how green it is).
- Field Parameters (Dissolved oxygen, conductivity, pH, temperature, flow, velocity) Dissolved oxygen is the oxygen processed through a fish's gills so that it can breathe. Flow and velocity are used to calculate loads of contaminants entering our estuaries for the FDEP's Total Maximum Daily Load program (TMDL).
- Microbiological (enterococci and e. coli are bacteria primarily from warm-bodied animals which track well with human enteric viruses).
- Other (Turbidity, Biochemical Oxygen demand (BOD), chloride, color, suspended solids) Turbidity, color and suspended solids are major attenuators of sunlight preventing it from reaching aquatic grasses. Chloride is a measurement of how much salt is in the water. BOD is a measurement of how fast the dissolved oxygen level can drop in water.

Estuarine Fixed Site Monitoring Program

Lee County's Estuarine Fixed Site Monitoring Program consists of monthly monitoring of 14 sites around Pine Island, 15 sites in Estero Bay, and 6 sites in the Caloosahatchee estuary. Samples are analyzed for:

- Nutrients (multiple forms of phosphorus and nitrogen)
- Chlorophyll
- Field Parameters (Dissolved oxygen, conductivity, pH, temperature, salinity)
- Microbiological (enterococci and e. coli)
- Other (Turbidity, BOD, color, suspended solids)

An interactive map of the fixed watershed and estuarine sampling sites can be found at:

<http://leegis.leegov.com/surfwater/Map>

Results can be graphed and downloaded at: <http://leegis.leegov.com/surfwater/>

Charlotte Harbor National Estuary Program (CHNEP) Random Stratified Network

Lee County also participates in the Charlotte Harbor National Estuary Program's (CHNEP) Random Stratified Network, collecting and analyzing five randomly selected samples each month from Estero Bay, San Carlos Bay, and Pine Island Sound. Additionally, the Environmental Laboratory analyzes samples collected by FDEP in the Caloosahatchee and CHNEP in South Charlotte Harbor. Analysis performed is similar to that of the fixed estuarine sites.

Water quality data from these efforts can be downloaded from the following websites:

- FDEP's Storage and Retrieval database (STORET) (<http://storet.dep.state.fl.us/DearSpa/default.do?page=waterdata>)
- CHNEP's Watershed atlas (<http://www.chnep.wateratlas.usf.edu/>)
- Lee County <http://leegis.leegov.com/surfwater/> (download/select "entire database").

The Environmental Laboratory also conducts a weekly drift algae, chlorophyll and red tide (*Karenia brevis*) assessment of major Lee County Parks with beach access and collects samples if there is any concern. The collected red tide samples are sent to the Florida Fish and Wildlife Commission for analysis. Results can be found at:

<http://myfwc.com/REDTIDESTATUS>

The Florida Department of Health collects and analyzes samples from major public beaches and tests for bacteria on a weekly basis. Results can be found at: <http://www.floridahealth.gov/environmental-health/beach-water-quality/>

The Florida Department of Agriculture and Consumer Services monitors shellfish harvesting areas, primarily for fecal coliform, to determine open/closed status of a particular shellfish harvesting area. Shellfish Harvesting Management information may be found here: <http://www.freshfromflorida.com/Divisions-Offices/Aquaculture/Shellfish-Harvesting-Area-Classification/Area-Information>

What does FDEP Test for?

FDEP tests local waters on a rotating basis for verification that water quality meets the State standards for intended use. The agency typically coordinates the response to harmful algae blooms with local agencies and the Florida Department of Health.

Additionally, FDEP has been designated as the lead agency by the Governor's Declared State of Local Emergency for Algal Bloom Monitoring and Response. Information on that effort can be found at: <https://depnewsroom.wordpress.com/algae-bloom-monitoring-and-response/>

Other Agency and Organization Water Quality Testing Resources

- **South Florida Water Management District (SFWMD)** - biweekly sample for Nitrogen and Phosphorus are collected from structure S-79 on the Caloosahatchee: the data can be downloaded from the agency's DBHYRO environmental database located here: <http://www.sfwmd.gov/portal/page/portal/xweb%20environmental%20monitoring/dbhydro%20application>
- **Sanibel Captiva Conservation Foundation** - conducts the River Estuary Coastal Observing Network (RECON) and other projects. <http://recon.sccf.org/>
- **U.S. Geological Survey** – provides water data collected from flow monitoring stations in the area and the information may be accessed by searching here: <https://www2.usgs.gov/water/>
- The United States Environmental Protection Agency's (USEPA) water data and tools can be found here: <https://www.epa.gov/waterdata>