

# Florida septic tanks in crisis

June 3, 2019



this is nitrate pollution in action.

Great article on septic tanks. Dinah Voyles Pulver, please do another article of this type on agriculture's contribution to nitrate pollution. The reason is that we talk too much about septic tanks, and want to sweep agriculture under the rug, because they have greater push-back than the septic people. Septics also get a bad rap also because of people like LaPointe who are biased and too often quoted as "experts." They give us a skewed view of the truth.

The fact is that rural areas have AG as the main nitrate polluter, and urban areas have septic tanks and urban fertilizer as the main point sources. This simple fact goes over the heads of agricultural biased people who are in denial. Unfortunately, some of these people are in positions of power.

Yes, the new nitrate-removing septic tanks cost more, but only those

opposing new septic systems quote 20k, many have said more like 7 or 8 thousand, but it is true there is a yearly up-keep fee.

The hard truth is that we must shift to these and pay the price.

Read the original article here in [the Gainesville Sun](#).

Comments by OSFR historian Jim Tatum.

-A river is like a life: once taken, it cannot be brought back-

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# Florida septic tanks in crisis

Dinah Voyles Pulver

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Millions of Floridians flush toilets, take showers and wash clothes every day with little thought about all the waste flowing down the drains and into their septic tanks.

But many of those septic tanks are too old, too close to each other, and too close to groundwater. Most were never designed to remove nitrogen. Statewide, nitrogen and other contaminants flowing into septic systems seep out through Florida's porous sands and limestone and into groundwater aquifers, polluting springs and waterways.

Out-of-sight septic systems – more than 40,000 in Alachua County and an estimated 2.7 million in Florida – add to growing concerns about the rising tide of nitrogen and other pollution feeding algae blooms and killing fish and sea grasses.

“I think the public tolerance for having algal blooms and dirty water is gone,” said Duane DeFreese, executive director of the

Indian River Lagoon Council.

Septic systems are just one piece of an increasingly troublesome challenge of managing the more than 300 billion gallons of wastewater generated a year by the state's more than 20 million residents. Aging, undersized city and county wastewater systems, storm water runoff from streets, sludge disposal, and fertilized lawns and farm fields all spew nitrogen and other contaminants into waterways and the layers of water underground that provide most of Florida's drinking water.

The extra nitrogen stimulates the growth of algae species that form thick beds and cause stress on other aquatic species by spurring wild fluctuations in oxygen levels.

Although toxic species like red tide on Florida's beaches may grab more headlines, nitrogen-fueled algae has changed the character of many Florida springs. Kirsten Work, chairman of the biology department at Stetson University, said the long stringy algae species growing in many springs smother the native eel grasses, interfering with photosynthesis and producing layers of dead algae that sink to the bottom and take away oxygen from the species living there.

Fixing all these problems will be expensive. One recent statewide report puts the cost of cleaning up the mess at \$1 billion a year for the next 20 years.

It may be a big hit to the pocketbook for homeowners with septic tanks. They could be asked to pay up to \$20,000 to replace outdated septic systems with nitrogen-removing tanks and drain fields, or more than \$5,000 to hook into a city sewer system. The cost creates tricky political questions for state and local officials who must vote on issues such as requiring maintenance and inspections, tank replacement or connections to municipal utilities.

Efforts to try to replace some septic tanks with hookups to city sewer have been controversial for decades across Volusia County, including in Deltona, Ormond-by-the-Sea, and Oak Hill, where city officials once placed a moratorium on any talk of sewer hookups.

Many homeowners aren't yet convinced their septic tanks are part of the problem. Deltona resident Mark Metzger would like to see more evidence the tanks are harming the environment. Metzger feels like more education might help address the fear that arises, particularly among many older residents living on fixed incomes, when talk comes up about requiring septic tank owners to buy new tanks or switch to city sewers.

"They start talking about the costs of these systems and it just creates panic," said Metzger. "The way (officials) put it out there, they think somebody is going to show up in their front yard and tell them they have to do it."

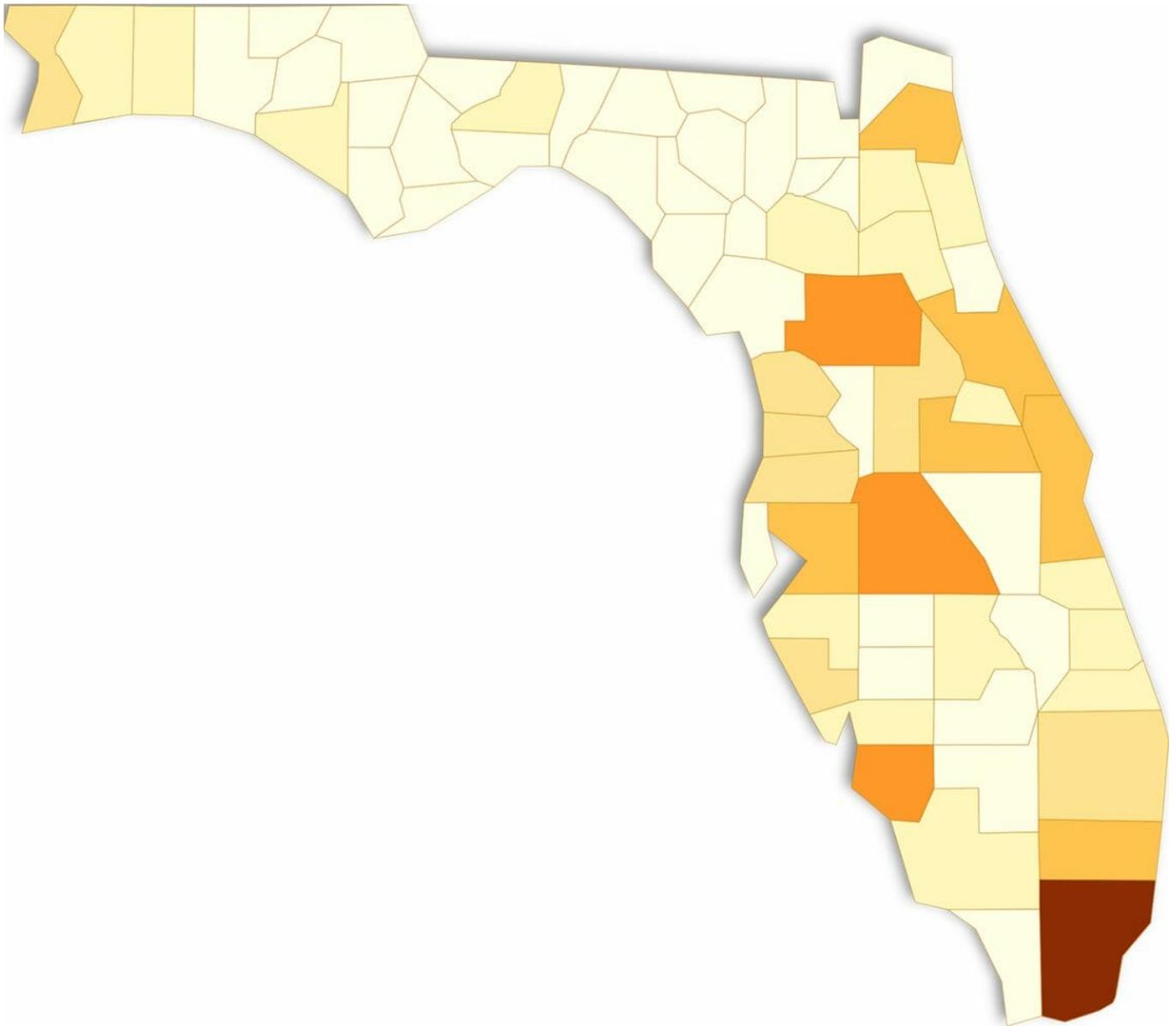
Metzger is one of dozens of homeowners, septic contractors, environmental experts and officials interviewed by The News-Journal during a months-long investigation into septic tanks, the environmental troubles for which they're blamed, and the high cost of reversing the damage.

"We will never, ever be able to fix our water problems until we get a handle on septic tanks," said Lee Constantine, a Seminole County Commissioner and former state senator who sits on two statewide panels looking at water issues.

Alachua County is the 23th largest county in population and has the 22nd most septic tanks in Florida – an estimated 41,774. Of these, 30,000 of them have been installed since 1970.

Miami-Dade County has the most, with 216,767 septic systems. Lee County is second highest, with 133,747 tanks, and neighboring

Marion County is third, with 123,720 despite being ranked 18th in population.



☀ [A Flourish data visualisation](#)

Septic tanks clustered in neighborhoods across the state catch much of the blame for high nitrogen levels in many of the state's waterways including springs and rivers.

New state rules that became official in January aimed at cleaning up 13 of the state's "outstanding" springs systems will

crack down on septic systems, changing what's allowed going forward in areas closest to Gemini Springs and DeLeon Springs. New rules also were approved for Blue Spring, but are delayed for now by a legal challenge.

Over the next 20 years, the new rules, called "basin management action plans," will require some homeowners in "priority focus areas" near the springs to add enhancements to their existing tanks, get new tanks that remove more nitrogen, or eliminate their septic tanks and hook up to city sewers.

On the east side of the county, local governments are looking at ways to eliminate septic tank waste from Mosquito Lagoon and the Halifax River, anticipating similar new state measures targeting nitrogen pollution in those waterways.

What happens when you flush?

Septic tanks have long been a low-cost way to handle sewage in Florida and across the country. Spending a few thousand dollars per home on a septic tank was cheaper than laying lines for municipal sewers.

A septic tank has two jobs: To dispose of every toilet flush, shower, dishwasher cycle and laundry load of water; and to keep the bacteria in the roughly 50 gallons of wastewater per person per day from contaminating the home's residents or their neighbors.

Wastewater flows into the septic tanks, ranging in size from 750 gallons to 1,200 gallons, depending on the number of bedrooms and age of the septic tank. Grease rises to the top. Solids settle to the bottom and are broken down by bacteria. The water in between flows out to the drain field through a series of perforated pipes under the lawn.

In use since the mid-1800s, septic tanks “are doing what they’re supposed to be doing, protecting human health,” said Ginger Adair, Volusia County’s director of environmental management. Most homes don’t have wastewater sitting in the yard, and people aren’t getting sick by the thousands in Florida from cholera.

What they weren’t designed to do is protect overall environmental health. Even when the tanks function perfectly, said Adair, they are “a significant contributor to nitrogen in ground water and that’s what we drink.”

Up to 17 pounds of nitrogen per person per year flows out through a drain field. With ample dry soil, some of the nitrogen can be converted to gas and released to the air. But all too often, nitrogen flows into the groundwater.

It promotes explosive algae growth the same way nitrogen in fertilizers turns a lawn green. That’s why water quality standards impose limits for nitrogen in waterways. An overload of nitrogen was blamed for helping fuel the algae super blooms that killed seagrass and wildlife in the Indian River Lagoon in 2011 and 2012 and for worsening the red tide on Florida’s southwest coast that killed millions of fish and prompted human health alerts last year. An overdose of nitrogen has impaired 24 of Florida’s 30 “outstanding” springs.

Studies by the Florida Department of Environmental Protection concluded the more than 20,000 septic tanks in western Volusia County, including DeLand and Deltona are a major factor in contamination at Blue Spring in Orange City and Gemini Springs in DeBary.

Nitrogen levels have tripled at Blue Spring over the past 30 years. Slimy green algae coats plants and rocks at the spring, something many old-timers say wasn’t a problem in the past. DEP concluded septic tanks were responsible for 54 percent of the

nitrogen at Blue Spring and 41 percent of the nitrogen at Gemini Springs.

Aging septic tanks, too close for comfort

Not all septic systems cause problems, said Tom Frick, DEP's director of environmental assessment and restoration. It's the location, density, and proximity to waterways that lead to trouble.

Too many of the septic tanks have been in the ground since the 1950s or before. Many aren't maintained or are overloaded with more people in a home than the system was designed to handle.

Cracked or leaking tanks or non-working drain fields contribute even more nitrogen. And, without regularly required inspections, said Stetson's Evans, no one knows "the extent of the problem."

In DeBary, developed when there were few, if any, rules for septic tanks, many septic tanks share space on small lots with drinking water wells, increasing the risk that residents' drinking water may include some of their own or their neighbor's wastewater.

"You can bet if you're drinking nitrates, you're drinking a lot of things you never thought about," said Bob Knight, executive director of the Florida Springs Institute. He cited a study that found nitrogen higher than federal safe drinking water levels in an area of densely clustered septic tanks along the Wekiva River. He added, "When you've got nitrogen in the groundwater, that means you have everything else in the water, the trace organics, the personal care products, the caffeine, the DEET, the estrogen, the ibuprofen."

For years, different groups have debated the source of the bacteria that closed Gemini Springs 19 years ago. Jason Evans

with Stetson University is convinced it's septic tanks, pointing to the hundreds of tanks spread across the landscape uphill from the springs.

Thousands of homes on small lots with septic tanks and drain fields crowd shorelines along the Mosquito and Indian River lagoons. The tanks were identified as part of the problem in the lagoons as far back as the 1970s and 1980s.

When many of the tanks were installed, the rules only required the bottom of the drain field to be six inches above the water table. Today, the requirement is two feet between the drain field and the wet season high water table.

One study in Charlotte County found 75% of the tanks in high-density urban areas couldn't meet that criteria during the wet season, Lapointe said. Some couldn't even reach it during the dry season.

If a drain field is sitting in water, the septic tanks can't function, he said. "You've got bacteria and all this stuff going into our adjacent groundwater."

In Oak Hill, some of the older tanks are inundated by a twice daily influx of water from rising tides, said Mayor Doug Gibson.

As Evans put it: "You're getting tidewater coming in and just washing out the poop."

Meanwhile, said Lapointe and Evans, rising sea levels in coastal areas are pushing the water table even higher.

Politically divisive

Septic tanks have been a politically divisive issue for years, with legislators, local officials, the industry and homeowners split over their contribution to pollution problems and how to

get Floridians to maintain and repair the systems.

In Deltona, Metzger isn't the only one who questions the science.

"I don't know if I buy into this nitrogen problem in the water," said Jamison Jessup, a founder of the "no forced sewers" campaign in Deltona. "I don't believe the problems in the springs are affected by septic tanks in Deltona."

Installing the new nitrogen-removing septic tanks and drain fields required by the springs protection plans could cost between \$12,000 and \$20,000, depending on the tank's location and the size of the home. Annual maintenance fees for the newer tanks can cost up to \$300.

Cost estimates for utilities to build municipal sewer lines in existing communities range from \$15,000 to \$20,000 per home.

Hooking up to the city sewer lines can cost a homeowner \$5,000 or more, depending on location and impact fees. It also comes with a new monthly bill. In Deltona, that bill can range as high as \$150 a month or more.

Septic tanks will never be eliminated entirely, in part because of the exorbitant expense to replace them.

Stetson's Evans and Ronnie Mills, owner of Joe Mills Septic Tank Service, also see other reasons for being judicious about wide scale expansion of sewer lines. Both said forcing more homes to sewer could encourage high-density growth, bringing even more nitrogen and waste and increasing the demand for water, which has its own impact on the springs.

Volusia County's Adair said the question is, "How do we continue to figure out how to use this low-tech way to dispose of wastewater but lessen the impact to natural systems?"

Septic contractors agree the densely clustered, and often unmaintained, tanks in urban areas create issues. But they also say the tanks shoulder too much of the blame for Florida's pollution problems. They point to golf courses and homeowners association requirements for ultra-green lawns that lead to heavy fertilizer use.

"A properly functioning and maintained onsite (septic) system is a definite alternative to sewer," said Anthony Pesare, owner of Tri-County Septic Services in Orange City. The tanks also help recharge the aquifer, he said.

The septic industry is working with state officials and researchers at Florida universities to try to improve tank and drain field performance and lower costs for the upgraded systems.

Pesare said part of the focus needs to be on getting property owners to look at their septic systems the same way they do their cars – in need of regular maintenance to keep them functioning properly.

Volusia County is working with state and city officials in West Volusia to identify the areas to target first for converting septic tanks to city sewers to try to improve water quality in Gemini Springs and DeLeon Springs.

Because of the high costs involved, Mike Ulrich, Volusia County's utilities director, said it's crucial to select the right areas, where replacement of septic systems can have the most impact and be most cost-effective.

Coming up with the money to help fund sewer conversions will be another challenge for local governments. A 2014 county report estimated it would cost \$353 million to replace 14,481 high-priority septic systems along Mosquito Lagoon, the Halifax

River, Blue Spring and Gemini Springs.

Volusia County Councilwoman Deb Denys, serving as chairman of the Indian River Lagoon Council this year, has worked with Mayor Gibson for years to put together the money to convert some of those low-lying septic tanks along Mosquito Lagoon in Oak Hill.

“Good water quality is our life blood,” she said. “It’s important for quality of life, for tourism and for jobs.”

Lapointe said the state needs a master wastewater plan, with state, federal and local funding, leaving as little burden as possible for homeowners.

He and Denys were among many who pointed out the importance of improving water quality to keep the state’s tourism industry afloat.

Photos that spread across the country last year on news and social media showing piles of dead fish suffering from the red tide in Southwest Florida leave lasting negative impacts, they said.

Noting the state receives an estimated \$110 billion a year in tourism funding, Lapointe said it’s worth spending some of that to preserve water quality. “I’m not an economist, I’m a marine scientist,” he said. “But even to me, it makes economic sense that by investing in our environment the return on our investment is huge.”

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