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Sea rise makes septic tanks ‘ticking bombs.’ Why does Miami-Dade still allow them?

BY ALEX HARRIS

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Low oxygen levels may have caused Biscayne Bay fish kill

Thousands of dead fish washed ashore along different spots in Biscayne Bay on Monday. Alarmed residents posted images on social media and alerted wildlife authorities. The water will be tested for harmful algae blooms BY KATHRYN MIKESELL / SANDY MOISE

For parts of this summer, swaths of once-clear Biscayne Bay turned into a stew of exploding algae and decaying fish carcasses.

One big reason why is right under our yards: Miami-Dade’s 120,000-plus septic tanks — an aging, leaky system for disposing of human waste that experts have pointed to as a public health and environmental hazard for bay waters since the 1950s. Yet, despite periodic calls as early as the 1960s for ambitious sewage system upgrades, the Herald found that the county has put only a small dent in the septic mess over the decades — and actually continues to issue permits for new ones.

Money, as usual, is the big stumbling block for a clearly defined problem with straightforward solutions.

TOP ARTICLES

Homeowners don’t like paying for it, and neither does the county. The most recent estimate for Miami-Dade was \$3.3 billion to get rid of most of them, and the cost per house can balloon far past the average \$10,000 price tag. That’s why residents have been granted reprieves from orders to hook into nearby sewage lines for decades.

But now experts fear the county is paying the cost with declining water quality and rising sea levels that mean more polluting waste reaching waters. Some scientists believe sections of the bay may never recover.

“They’re like ticking bombs. It’s just a matter of time,” said Duanne Andrade, whose loan company is coming up with creative, affordable solutions in other parts of Florida.

The latest brain trust to tackle the Bay’s problem — the Biscayne Bay Task Force — specifically called out Miami-Dade’s septic tanks as a major problem, just like the reports and experts and task forces before it.

“Septic tanks are definitely part of the problem. The science is saying that. And you add sea level rise on top of that and now we have a big problem down the road,” said Irela Bagué, chair of the task force. “We’re running out of time.”

One solution, they said, could be a little-known law that’s been on the books in Miami-Dade since 1971, one that could have helped curtail the problem over the decades.

A DECADES-OLD PROBLEM

In 1971, the Federal Water Quality Administration (a precursor to the EPA) produced a major report with clear mandates for Miami-Dade, including installing water treatment plants and getting rid of septic tanks. The estimated cost of fixing all the county’s wastewater issues was north of a billion dollars.

The first finding of the report was that “Septic tanks, widely used in Dade County, are public health hazards and contribute to over-fertilization and algal nuisances in adjacent waterways.” At the time, there were about 143,000 in the county, and the feds said they all had to go.

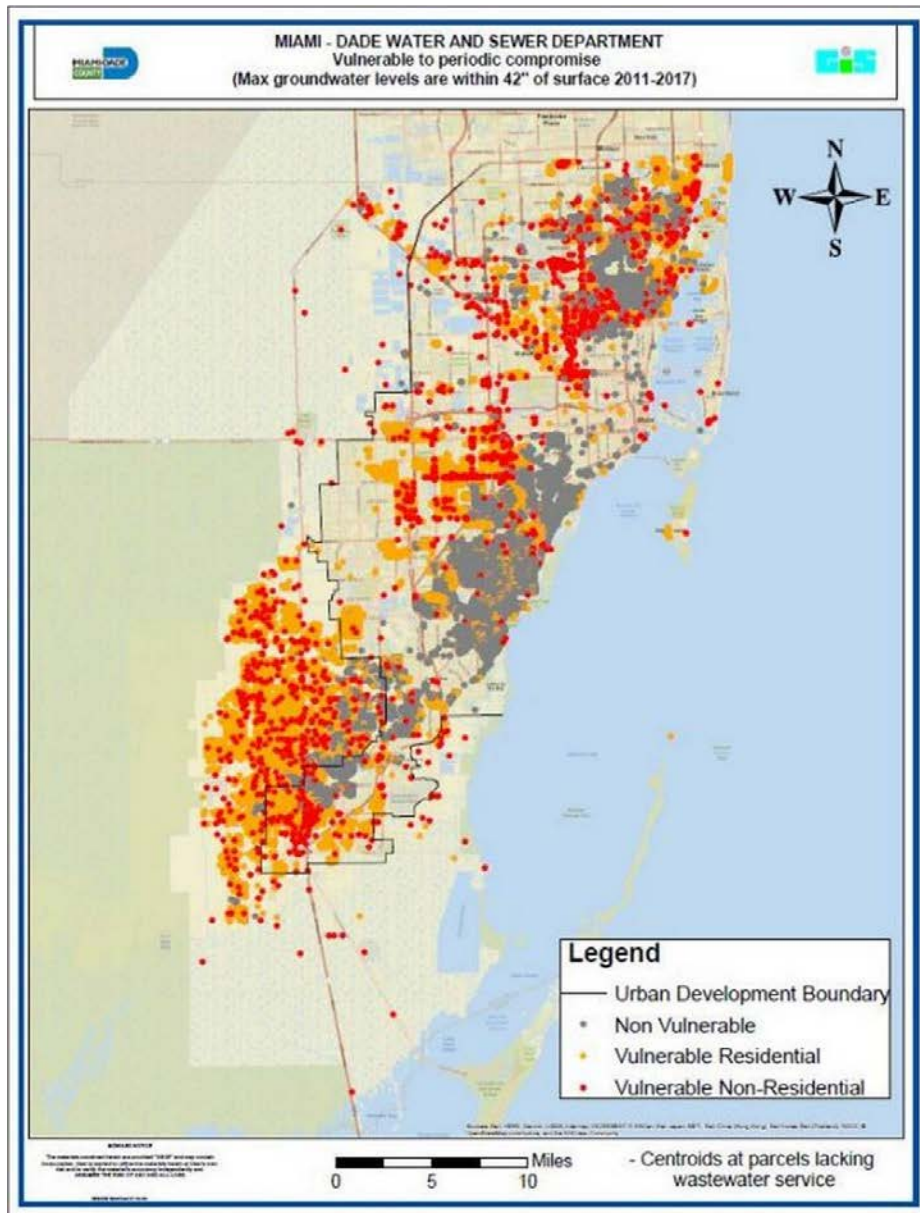
The county's part of the bargain, a Metro Dade Water Quality management plan, was produced in 1973. The plan was to get rid of all septic tanks by 1990. It even called for banning the use of septic tanks everywhere except single-family homes with lots greater than 15,000 square feet.

That didn't happen.

Fifty years later, roughly 120,000 septic tanks still remain. And new ones are being permitted every year.

A 2018 [report commissioned by the county](#) tallied up the remaining residential tanks and found that switching just 83,000 of them to sewer would cost the county more than \$3.3 billion dollars.

"Regardless of sea level rise we've got 120,000 septic tanks, a vast amount of them absolutely do not belong in South Florida and are polluting Biscayne Bay," said Aaron Stauber, a researcher with Miami Waterkeeper who spent the better part of a year researching the problems with septic tanks. "That was the conclusion in 1970, they don't work in the conditions of South Florida."



More than half of Miami-Dade County's 105,000 residential septic tanks have annual issues. A new report commissioned by the county shows that half of the county's septic tanks break down yearly, a problem that sea level rise will worsen. MIAMI-DADE COUNTY

THE SEPTIC-TO-SEWER CONVERSION LAW

One thing that did happen after the feds came into town was a new law in Miami-Dade mandating that anyone abutting a sewer line get rid of their septic tank and connect to the county sewer line. To enforce that, the county sends out a letter, a notice of required connection also called a NORC. If the property owner won't connect within 90 days, the county has the power to do it for them and charge the cost of installation as a lien on the property.

But Carlos Hernandez, chief of the waste and wastewater division at DERM, said that's not how the law is enforced.

Hernandez said the county doesn't go around looking for homes to connect. Usually, the county finds out about a septic home close to a sewer line when the homeowner tries to get a permit for something on their property. In that case, DERM often denies the permit until the home gets rid of its septic tank and connects to the sewer line, then it sends letters to all the neighbors ordering they do the same.

In 2018, the county changed the rule to give property owners a full year to switch to sewer instead of 90 days. Property owners often ask for longer, usually because they don't have enough money on hand. The average cost for a homeowner to connect is anywhere from \$3,000 to \$10,000, plus a new monthly sewage bill.

If they need more time than that, they can go before the independent Environment Quality and Control Board. If the board determines the homeowner has no excuse not to connect, the county attorney can sue the homeowner into connecting to sewer.

HOW MANY NORCS ARE THERE?

Of the 120,000 septic tanks in Miami-Dade County, no one knows exactly how many are close enough to sewer lines to connect right now.

One common number tossed around is 12,000. DERM even uses it in presentations. But Hernandez said it's an estimate from a 10-year-old study that only considered properties in unincorporated Miami-Dade. Adding cities like Miami Gardens and Coral Gables could push that number much higher.

From January 2010 to the beginning of September, DERM records show they have connected 436 residential properties to sewer, with another 538 properties pending connection. That time span includes years where DERM was negotiating a change to the code defining who exactly had to connect and didn't issue NORCs.

A few years ago, Hernandez said the county began asking municipalities to provide detailed maps showing which residents were connected to county water and sewer and how many were still on septic tanks. Today, they have every municipality except Homestead.

Once that data set is complete, Hernandez said the county plans to do another survey and find out how many septic tanks are connectable. But even that number will still be an estimate, because the records identifying locations of septic tanks can be old or inaccurate.

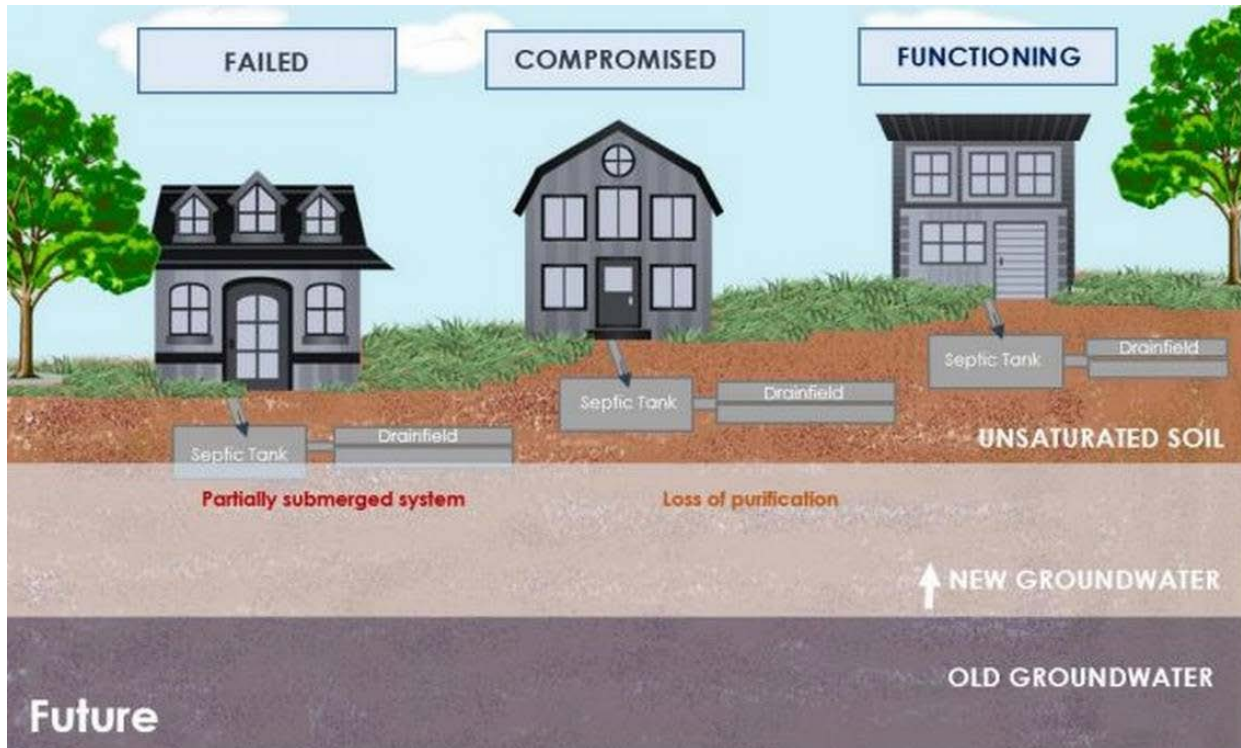
"Those records are really, really old and really, really limited. There are cases where people are connected to sewer but aren't paying or are paying and aren't connected," Hernandez said.

THE ROLE OF SEA LEVEL RISE

Miami-Dade's septic tanks have been overflowing during rainstorms for decades, long before sea level rise began. In a 1949 edition of LOOK magazine bought off eBay by Waterkeeper researcher Stauber, the author writes about watching septic tanks spill onto sidewalks and front lawns in Coconut Grove after heavy rain.

“Modern sewage systems are the exception rather than the rule in Florida. It is a region of privies and septic tanks — and worse,” he wrote.

Back in the 1950s, septic tanks were only required to have six inches of room to drain underneath them, and some of those septic tanks are still around. Now the rules call for two feet, although the county study on sea rise and septic tanks show that’s not enough to prevent serious pollution.



A graphic explaining the relationship between groundwater levels and the effectiveness of a septic tank. A new report commissioned by Miami-Dade County shows that half of the county’s septic tanks break down yearly, a problem that sea level rise will worsen. MIAMI-DADE COUNTY

Septic tanks are basically a box that holds human waste. Over time, the liquid seeps out of the box and trickles into the ground and the aquifer. If the groundwater is too high, the once-dry dirt gets soggy and doesn’t properly drain the waste. That can turn front lawns into stinky swamps or spill over into the bay.

The study found that around 58,000 septic tanks could be compromised in a heavy storm or wet year currently. By 2030, that number could jump to 67,000. Under average conditions today, the study also identified around 800 residential septic tanks that are already failing regularly.

After the county’s report was published in 2018, the commission asked the Water and Sewer Department to come up with an action plan to transition Miami-Dade to sewer. It still hasn’t been released.

Jennifer Messemer, spokesperson for the department, said the report is being finalized after some changes were requested by the Mayor’s office.

ONE COUNTY GETS CREATIVE

Septic tank woes aren’t a uniquely Miami-Dade problem. In the northern half of the state, they’re one of the leading pollution problems for the Florida Springs, prompting Tallahassee to create a revolving loan to help small cities switch from septic to sewer.

In Martin County, they leak into the Indian River Lagoon. But the county is pioneering a new idea to get its most vulnerable septic tanks onto sewer mains without charging residents more than they can handle.

The county identified the riskiest spots, about 500 houses, and installed the main pipes out to those homes. To help residents foot the bill, the county partnered with a non-profit lending company, the Solar Energy Loan Fund or SELF, to customize individual loans. The monthly payment is under \$85, and residents pay through their water bills.

“I’ve got people waiting in a queue for the financing. I think I’m going to have a run as soon as the Board of County Commissioners approves it. We are pretty excited about it,” said Samuel Amerson, utilities and solid waste director for Martin County.

In the rest of the state, getting the money to switch to sewer would require going to the bank for a loan. Bills to allow a popular — yet controversial — private program that offers loans to install solar or replace roofs to expand to cover septic-to-sewer conversion haven’t advanced in Tallahassee. But those options can price out lower-income residents, which is the case for many of Miami-Dade’s septic tank owners.

NEW SEPTIC TANKS KEEP COMING

With no clear plan on how to get rid of old septic tanks, Miami-Dade is still allowing new ones to go into the ground every year. Of the 1,174 people who came to the board since 2013 to fight a septic tank mandate, a Waterkeeper review of the data found only 1 percent were rejected. Everyone else got extra time or permission to install a septic tank anyway.

“What DERM knows for a fact is that septic tanks that shouldn’t be there remain there contaminating the groundwater. That, to me, is kicking the can down the road,” Stauber said.

Part of the reason is the infrastructure still isn’t there. You can’t force a homeowner to connect to sewage in someplace like Pinecrest if there are no sewage pipes to connect to. Money is also a factor. Business owners, landlords and residents often plead with the board for exceptions or more time because they don’t have the cash needed to install a new tank — a multi-thousand dollar prospect.

That doesn’t mean the board isn’t trying to improve. When someone asks for permission to build a new septic tank these days, DERM asks landowners to use a more modern type of septic tank system that includes extra filtering and requires the permit seeker to build it a half foot higher than the code calls for.

“In the last year we have not approved a standard septic system in any of those cases,” Hernandez said. “The days of allowing a standard drainage system in a concrete box are gone.”

The problem with the newer systems is they require electricity, which can be knocked out in a storm, and regular maintenance and inspections. That makes them a good bit pricier than your standard set it and forget it septic tank, which makes the hurdle for homeowners even higher.

Number of residential parcels on septic meeting the vulnerability thresholds:							
MUNICIPALITY	Base-Case Scenario				Sea-Level Scenario		
	Parcels with septic systems ¹	Vulnerable to persistent failure ²	Vulnerable to persistent compromise ³	Vulnerable to periodic failure ⁴	Vulnerable to periodic compromise ⁵	Vulnerable to periodic compromise by 2030 ⁶	Vulnerable to periodic compromise by 2040 ⁷
AVENTURA	54	1	5	54	54	54	54
BISCAYNE PARK	854	0	21	357	607	672	708
CORAL GABLES	2930	4	22	75	195	256	260
CUTLER BAY	228	1	1	1	18	31	31
DORAL	329	9	93	166	303	321	321
EL PORTAL	754	9	94	164	365	462	462
FLORIDA CITY	0	0	0	0	0	0	0
GOLDEN BEACH	65	3	9	65	65	65	65
HIALEAH	689	18	71	287	611	649	649
HIALEAH GARDENS	124	5	22	53	119	121	121
HOMESTEAD	2305	4	163	1528	2275	2301	2302
INDIAN CREEK VILLAGE	30	0	1	22	26	30	30
KEY BISCAYNE	14	0	4	13	14	14	14
MIAMI	1603	5	23	75	156	177	177
MIAMI GARDENS	6708	0	125	1328	3761	4515	4515
MIAMI LAKES	10	0	1	5	7	8	8
MIAMI SHORES	3123	10	64	211	578	864	888
NORTH MIAMI	199	5	78	146	176	184	188
NORTH MIAMI BEACH	5265	0	4	665	2780	3751	3751
OPA-LOCKA	0	0	0	0	0	0	0
PALMETTO BAY	5757	2	18	52	893	1753	1753
PINECREST	5088	5	23	175	926	1797	1808
SOUTH MIAMI	2101	0	27	694	1203	1324	1324
SWEETWATER	672	0	244	669	672	672	672
VIRGINIA GARDENS	477	0	62	370	475	477	477
MIAMI SPRINGS	1	0	0	1	1	1	1
SUNNY ISLES BEACH	5	2	3	5	5	5	5
UNINCORPORATED	65386	748	4687	23575	42064	46573	46650
TOTAL	104771	831	5865	30756	58349	67077	67234

A table in the 2018 report on septic tanks and sea level rise shows the breakdown where vulnerable septic systems are located in the county. Unincorporated Dade has the most by far, followed by North Miami Beach, Pinecrest and Palmetto Bay. MIAMI-DADE COUNTY

And most of the time, those standard septic tanks are cheaper than a monthly sewer bill. For a home under 3,000 square feet, the average monthly sewer bill runs between \$75 and \$100. The main expense for septic tanks is pumping them out every couple of years, a quick, yet smelly, affair.

Last week, in a small pocket of unincorporated Dade two blocks north of the Miami River, 60-year-old Ray Alvarez had a team from AA ARON Super Rooter empty out the overflowing septic tank for his 1950s home. It took about an hour.

Alvarez, a former truck driver, said he wishes he could just connect to city sewer and stop worrying about the ancient septic tank in his backyard, but a few obstacles stand in his way: there are no pipes in his neighborhood to connect to, and he doesn't have the cash.

"I don't have \$10,000," he said. "If I had it, I would have done it. In a heartbeat."

Instead, he forked over \$255 to the septic company, which also told him high groundwater levels and years of use have taken a toll on his system. He needs a new drain field, a nearly \$2,000 expense.

"I'm thinking about it," he said.

[**ALEX HARRIS**](#)

<https://www.sun-sentinel.com/local/broward/fort-lauderdale/fl-ne-sewage-spills-fort-lauderdale-fine-20201007-mjpm1sleiffcdn2wqv4c54tnxa-story.html>

State to Fort Lauderdale: Pay record fine for sewage spills or invest in environment

By **SUSANNAH BRYAN**

OCT 07, 2020 AT 6:00 AM

FORT LAUDERDALE — After a series of epic sewage spills that killed fish and [fouled the air](#) in neighborhoods from Rio Vista to Coral Ridge, Fort Lauderdale was hit with a \$2.1 million whopper of a fine — the largest in state history.

But on Tuesday night, commissioners approved a deal with state officials that would allow the city to spend more than \$3 million on an environmental restoration project in lieu of paying the fine.

“This is a great win-win in my eyes,” Commissioner Ben Sorensen said after the vote. “We can partner with the state and improve the quality of our waterways.”

More than 211.6 million gallons of [sewage leaked](#) from Fort Lauderdale’s aging pipes into waterways and streets — the state’s largest spill on record — between December 2019 and February 2020.

[RELATED: State fines Fort Lauderdale \\$1.8 million for sewage spills »](#)

The state Department of Environmental Protection [surprised city officials](#) with a \$1.8 million fine in February. The fine, which includes a civil penalty of \$1.74 million, [ballooned](#) to \$2.1 million in June due to additional spills.

On Tuesday night, City Manager Chris Lagerbloom urged the commission to approve the new consent order so the city could “put this all behind us.”

Lagerbloom said state officials notified him on Friday that if the consent order was not approved this week, they planned to order the city to pay the \$2.1 million fine and take away the option of investing in a restoration project.

“The Florida Department of Environmental Protection indicated to me that if the amended consent order was not on the commission agenda for consideration [Tuesday night], they would no longer agree to an in-kind project and would file a complaint,” Lagerbloom told the South Florida Sun Sentinel. “A complaint is a form of judicial action alleging a violation of a rule or statute. Ultimately, we concluded that agreeing with the amended order and pursuing an investment in the environment far outweighed a fine or other protracted legal process.”

The state is also requiring Fort Lauderdale to pay a \$5,000 administrative fee.

Fort Lauderdale has come up with a list of potential projects, Lagerbloom said. Once city officials get approval from the state, they can move forward with the project.

[RELATED: Finally, we know how much sewage spilled in Fort Lauderdale: 126.9 million gallons »](#)

The project must cost at least \$3,167,250 to offset the fine.

Fort Lauderdale’s aging sewer pipes broke six times in December and [spewed 126.9 million gallons](#) of sewage — ranking as one of South Florida’s [biggest spills](#). Toxic sewage [gushed into the Tarpon River](#), the Himmarshee Canal and streets in three neighborhoods: Rio Vista, Victoria Park and Coral Ridge.

Another 79.3 million gallons spilled into George English Lake over a 10-day period that began on Jan. 30 and ended on Feb. 8. An additional 5.4 million gallons flooded streets near George English Park right across from the Galleria mall on Sunrise Boulevard, just blocks from the beach.

The state cracked down on Fort Lauderdale after a series of sewage spills in 2016. The following year, state officials required Fort Lauderdale to make \$117.5 million in sewer system repairs and improvements through 2026. The order consent included penalties for future sewer pipe breaks, with fines of \$10,000 a day for spills of more than 100,000 gallons.

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