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Hurricane Ida destroyed almost 30,000 utility poles in Louisiana.

HURRICANE IDA FORCES RESEARCHERS TO RETHINK THEIR FUTURE

The category-4 storm is the latest tropical cyclone to close Louisiana universities and disrupt research.

By Max Kozlov

When Hurricane Ida tore through New Orleans in late August, researchers there were relieved that the category-4 storm didn't entirely flood the city. The flood-regulating levee system, fortified after the devastation of Hurricane Katrina 16 years ago, seemed to hold. What took them by surprise was that Ida ravaged Louisiana's power grid, leaving residents to bake in the heat for days and weeks, while universities closed and researchers struggled to preserve samples and keep projects running.

Ida is the sixth tropical cyclone to make landfall in Louisiana since the start of 2020, and scientists are worried that the frequency of the storms, combined with a failure by state and local officials to adapt infrastructure to climate change, will imperil the millions of people who live along the Louisiana coast. Scientists also worry that the relentlessness of the storms could dissuade researchers from joining universities there and from conducting crucial investigations of the ecological impacts of climate change along the coast.

"You have to wonder, how much more can this area take and continue to spring back?" says Allyse Ferrara, a fish biologist at Nicholls State University in Thibodaux, Louisiana, who started a community-based coastal-restoration project after seeing the damage from Katrina. Thibodaux, which is southwest of New Orleans, was directly in Ida's path and is unlikely to regain power for weeks. "I'm really scared to see what some of the sites we work at look like," she says.

Freezer frenzy

Sunshine Van Bael, a microbial ecologist at Tulane University in New Orleans, describes the aftermath of Ida as an "inside out" version of the COVID-19 pandemic: last year, "we were in quarantine and trapped in our houses, and we couldn't go to the lab", she says. "And now with Hurricane Ida and its after-effects, it's the opposite — it's like we're trapped away from our home. Everybody has evacuated to different places, and we still can't get to our labs."

With its 240-kilometre-per-hour winds, Ida damaged or destroyed more than 30,000 power-line poles and nearly 6,000 transformers in Louisiana and neighbouring Mississippi — more than the major Louisiana hurricanes Katrina, Zeta, Ike and Delta combined, according to Entergy Corporation, the New Orleans-based company that provides most of Louisiana's power. The firm is making progress in its repairs but says it might take until the end of the month to fully restore power to all Louisiana communities.

When Van Bael surveyed the damage the day after Ida rolled through, she was relieved it had spared her home and, for the most part, her neighbourhood. Her lab, by contrast, was in danger. A back-up generator at Tulane had failed, threatening to destroy freezer-stored seeds and genetic material — some of them the culmination of years of work. Despite spotty phone coverage after the storm, she and colleagues across the ecology and evolutionary biology department frantically called and e-mailed collaborators to see whether they had freezer space to spare. Their pleas were answered, and Van Bael would go on to drive cooler-packed samples as far as 1,600 kilometres north, to Iowa State University in Ames.

Keith Clay, a microbial ecologist at Tulane, was also taken by surprise when Ida obliterated the New Orleans power grid. He had decided to stay in the city during the storm because he lives on high ground that didn't flood during Katrina. But afterwards, when "reality sunk in" that there would be no electricity for days or weeks, he says, he decided to evacuate.

Shocks to the system

Apart from concerns about research disruptions, Clay and others worry that with each storm to hit Louisiana, universities will haemorrhage students and staff — impacts that could continue for the long term. In the face of the extended power cuts, Tulane announced on 30 August that it was closing its campus until mid-October, and evacuating students by bus to Houston, Texas. "I would not be surprised if some students don't come back, and faculty that might be nearing retirement may be deciding this is the straw that broke the camel's back," says Clay.

As this story was published, power had been restored to all of Tulane's buildings. And the university hopes to resume in-person classes and research activities earlier than planned, says spokesperson Keith Brannon. But Clay still worries that Tulane's closure represents a "double hit" for the state's academic system — US universities were already struggling because of COVID-19 restrictions and decreased student enrolment. "The long-term prognosis is grim," says Clay. "There may be some students that just say, 'I can't deal with this anymore.'"

Researchers, too, are contemplating how much more they can take. They say that climate change will become a factor in their decisions about what projects to take on, as hurricanes become stronger and intensify more quickly. "Instead of writing grants to work way out on the coast, which can get hammered over and over again, I might consider focusing more energy on wetlands that are closer to the city," says Van Bael, who studies how coastal plants and microbes interact. The cruel irony of the situation, she says, is that we "direly need" fieldwork out on the coast to understand the

true ecological impacts of climate change. To keep such high-risk projects going, she adds, might require extra funding to incentivize researchers.

Lee Hamm, dean of Tulane's medical school, worries especially about the long-term effects of stronger storms on both the progress of junior researchers, who have already had their careers interrupted by COVID-19, and the recruitment of new faculty members. That's one of the reasons to hope for a "very quick" recovery from Ida, he says.

Louisiana's extended power cut underscores the urgent need to focus on climate adaptation in the area, specialists say. Rather than just preparing for disasters over and over, says Jesse Keenan, a researcher in urban planning at Tulane, officials need to address the underlying issues that cause climate vulnerability. "We've framed climate change in very localized terms that are very episodic and are understood in terms of shocks," he says. Instead, he adds, local officials should also be thinking about long-term stresses on the system.

It is imperative that energy companies reinforce their existing infrastructure and even find ways to relocate parts of it to less-risky spots to prevent another power-grid collapse, says Keenan. "Are we going to continue making infrastructure investments that just perpetuate a cycle of recovery that we really can't afford anymore?"

HOW COVID IS DERAILING THE FIGHT AGAINST HIV, TB AND MALARIA

The pandemic's effects on other infectious diseases could exceed the direct impact of COVID-19.

By Leslie Roberts

The COVID-19 pandemic has had a 'devastating' impact on the fight against other deadly infectious diseases, according to a report that compares 2019 and 2020 data on HIV, tuberculosis (TB) and malaria in more than 100 low- and lower-middle-income countries.

The assessment was conducted by the Global Fund, an international organization that funds efforts to tackle these three health challenges.

"COVID-19 has been the most significant setback in the fight against HIV, TB and malaria, that we have encountered in the two decades since the Global Fund was established," writes the organization's executive director Peter Sands in an introduction to its *Results Report 2021* (see go.nature.com/3tdbeev).

As countries went into lockdown and resources were diverted to combat the pandemic, prevention, testing and treatment services for all three dropped precipitously, although the impacts vary for each. In some countries, says Sands, "the knock-on effects on HIV, TB and malaria could exceed the direct impact of COVID-19".

Treatment delays

For HIV, the number of people reached by prevention programmes that supply condoms or clean needles and syringes, for example, dropped by 11%. HIV testing fell by 22%, delaying treatment and contributing to ongoing transmission of the virus (see 'Testing trouble').

Grace Ngulube, an HIV activist in Malawi, is particularly worried about adolescent girls and young women, who account for 6 out of 7 new HIV infections among those aged 15 to 19 in sub-Saharan Africa, according to the report. In some places, the roll-out of COVID-19 vaccinations has also caused problems for HIV-related work. Because of misconceptions about vaccine safety, many girls and young women are hesitant to seek medical care for fear they will be vaccinated, Ngulube says.

However, the number of people living with HIV who received antiretroviral drugs increased by 9%, in part because clinics in some countries began providing them with enough medicine to last several months, to reduce the need for frequent visits.

Efforts to combat TB, the second-biggest cause of annual infectious-disease deaths globally after COVID-19, were dealt a more severe blow. TB is also caused by an airborne pathogen, so TB programmes lost out because resources such as isolation wards, diagnostic kits and medical specialists were diverted to the pandemic, says Jamie Tonsing, senior TB adviser at the Global Fund. In countries the Global Fund supports, the number of individuals tested and treated for TB fell by 18% – amounting to about one million people. For extensively drug-resistant TB, the fall was 37%, an especially severe impact. Untreated cases will lead to increased transmission and even more deaths from TB than the 1.4 million recorded in 2019.

Malaria 'stable'

The outlook for malaria remains "somewhat stable" in countries the Global Fund supports, the report says, without significant setbacks or gains. Although campaigns to distribute insecticide-treated bed nets, currently the best tool for preventing malaria, were delayed early on in the pandemic, countries were quick to adapt, says Scott Filler, who heads the Global Fund's malaria programme. When campaigns resumed, many countries switched from dispensing bed nets in public spaces to delivering them door-to-door, to avoid crowding. That contributed to a 17% rise in the number of nets distributed. However, the number of people with suspected malaria who were tested fell by 4.3%. "A lot of kids did not get tested who should have been," Filler says.

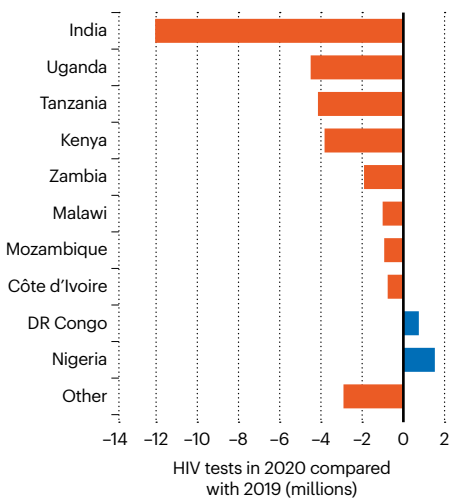
"We really won't get back on track for HIV, TB and malaria until we get on top of COVID-19."

Even so, progress against malaria has stalled "at unacceptably high numbers", says Pedro Alonso, who heads the Global Malaria Programme at the World Health Organization. There are still more than 400,000 deaths from malaria and 220 million cases a year.

Disease experts worry about the impact that waves of SARS-CoV-2 infections and the emergence of new variants will continue to have on efforts to combat these three diseases. "The crisis is far from over, especially with the Delta variant wreaking havoc," says Sands. "We really won't get back on track for HIV, TB and malaria until we get on top of COVID-19."

TESTING TROUBLE

Many countries where the Global Fund supports health care have seen a drop in HIV testing during the COVID-19 pandemic.



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