



Olivia Rosane

Dec. 06, 2018 09:30AM EST

[Climate](#) →



Birthday Canyon on the Greenland Ice Sheet. James Balog / Getty Images

Greenland Melting Is 'Off the Charts'

The first continuous, multi-century study of surface melt from the [Greenland](#) ice sheet was published in [Nature Wednesday](#), and the results are clear: the ice sheet is now melting at rates unseen within at least the last 350 years.

"Melting of the Greenland Ice Sheet has gone into overdrive. As a result, Greenland melt is adding to sea level more than any time during the last three and a half centuries, if not thousands of years," lead study author and Rowan University School of Earth & Environment glaciologist Luke Trusel said in a [press release](#) from the [Woods Hole Oceanographic Institution \(WHOI\)](#), one of the institutions involved in the research.

Greenland is Melting Faster than Ever

www.youtube.com

The researchers found that melting first increased on the ice sheet in the 1800s, when the [Arctic](#) began to warm as the process of industrialization started pumping greenhouse gasses into the atmosphere. However, it is only in recent decades that the melting has increased beyond the point of natural variability. There is now 50 percent more meltwater runoff entering the oceans from the sheet since the start of the industrial era, and 30 percent more since the 20th century.

"From a historical perspective, today's melt rates are off the charts, and this study provides the evidence to prove this," WHOI glaciologist and study author Sarah Das said.

#Greenland's ice is melting more rapidly in recent decades than at any point in at least the last 350 years, and li...
<https://t.co/7aup1MfLn9>

— Luke Trusel (@highlatitude) [1544032843.0](#)

The researchers were able to prove what many had sensed through observation by using a novel method, as the WHOI explained:

To determine how intensely Greenland ice has melted in past centuries, the research team used a drill the size of a traffic light pole to extract ice cores from the ice sheet itself and an adjacent coastal ice cap, at sites more than 6,000 feet above sea level. The scientists drilled at these elevations to ensure the cores would contain records of past melt intensity, allowing them to extend their records back into the 17th century. During warm summer days in Greenland, melting occurs across much of the ice sheet surface. At lower elevations, where melting is the most intense, meltwater runs off the ice sheet and contributes to sea level rise, but no record of the melt remains. At higher elevations, however, the summer meltwater quickly refreezes from contact with the below-freezing snowpack sitting underneath. This prevents it from escaping the ice sheet in the form of runoff. Instead, it forms distinct icy bands that

stack up in layers of densely packed ice over time.

Using ice cores allowed the researchers to provide more historical context than the satellite data they had relied on up until now to judge melt rates, which only goes back to the 1970s.

"We have had a sense that there's been a great deal of melting in recent decades, but we previously had no basis for comparison with melt rates going further back in time," study author and MIT-WHOI graduate student Matt Osman said. "By sampling ice, we were able to extend the satellite data by a factor of 10 and get a clearer picture of just how extremely unusual melting has been in recent decades compared to the past."

The research has troubling implications for future [sea level rise](#), because it shows that the ice sheet isn't melting at a steady rate. Instead, each degree of warming increases the amount of melting, meaning the more the planet warms, the more sensitive the ice sheet will be.

"Even a very small change in temperature caused an exponential increase in melting in recent years," Das said. "So the ice sheet's response to human-caused warming has been non-linear."

Trusel summed up the implications:

"Warming means more today than it did in the past," he said.

.@RowanUniversity's @highlatitude: "Warming means more today than it did in the past. What we do now and in the fut... <https://t.co/Mfe2lX9580>

— Climate Strategy (@ClimateSt) [1544037007.0](#)

The research is in keeping with estimates that global sea levels will rise by eight to 12 inches by 2050, but University of Lincoln climate scientist Edward Hanna, who was not involved with the study, [told InsideClimateNews](#) that sea level rise projections might have to be increased if Greenland keeps melting.

"We can't rule out that the [IPCC](#) (Intergovernmental Panel on Climate Change) sea level rise scenarios are too conservative," Hanna said. "Greenland is a bit like a sleeping giant that is awakening. Who knows how it will respond to a couple of more degrees of warming? It could lose a lot of mass very quickly."



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The Disturbing Truth About Trump's Relationship With Ivanka

 onEarth
Jan. 19, 2019 09:00AM EST

Animals

An adult bush dog, part of a captive breeding program. *Hudson Garcia*

A Rescue Dog Is Now Helping to Save Other (Much Wilder) Dogs

By Jason Bittel

Formidable predators stalk the forests between Panama and northern Argentina. They are sometimes heard but never seen. They are small but feisty and have even been documented trying to take down a tapir, which can top out at nearly 400 pounds. Chupacabras? No.

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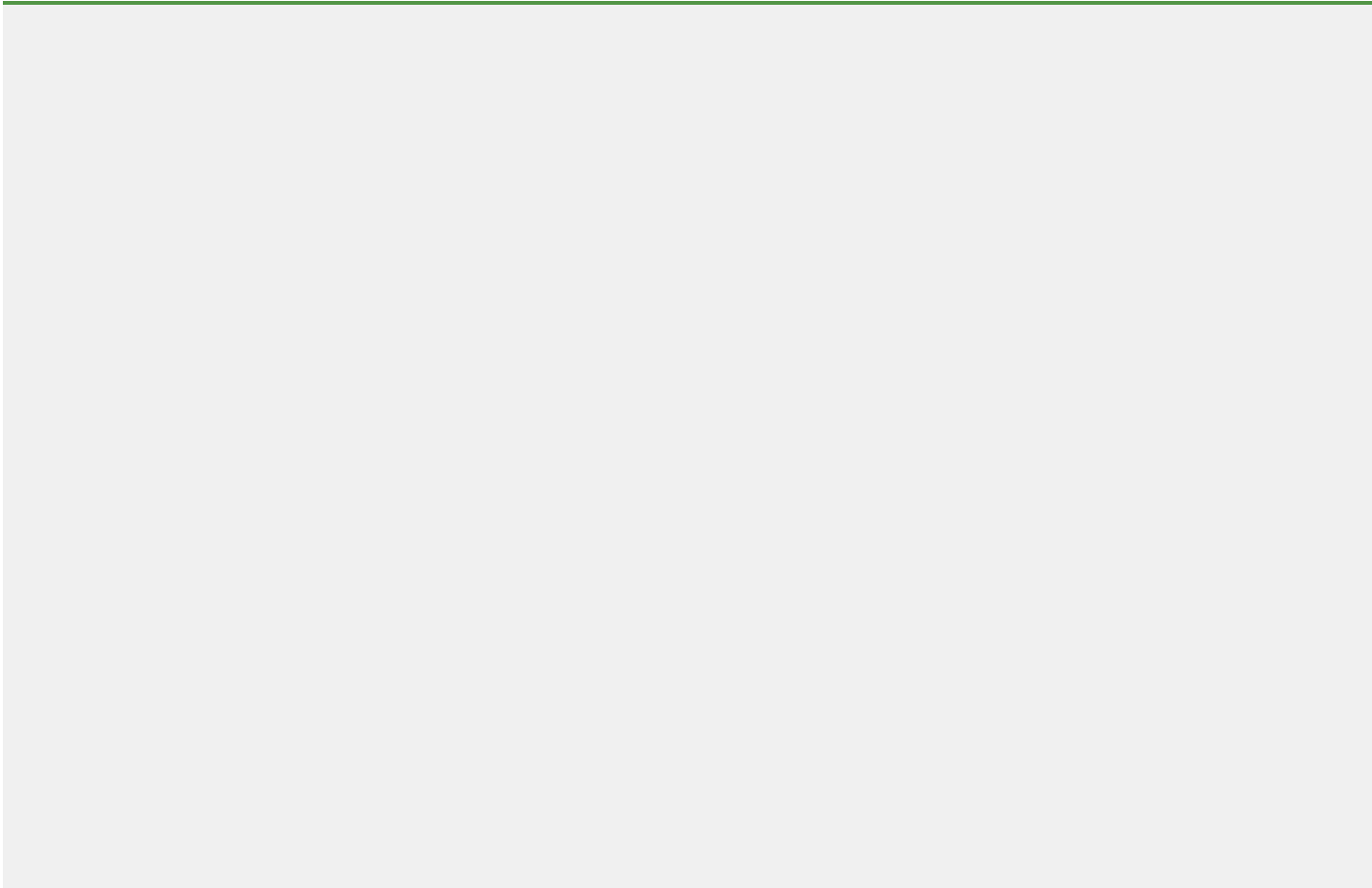
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What Is Mead, and Is It Good for You?

By [Ansley Hill, RD, LD](#)

Mead is a fermented beverage traditionally made from honey, water and a yeast or bacterial culture.

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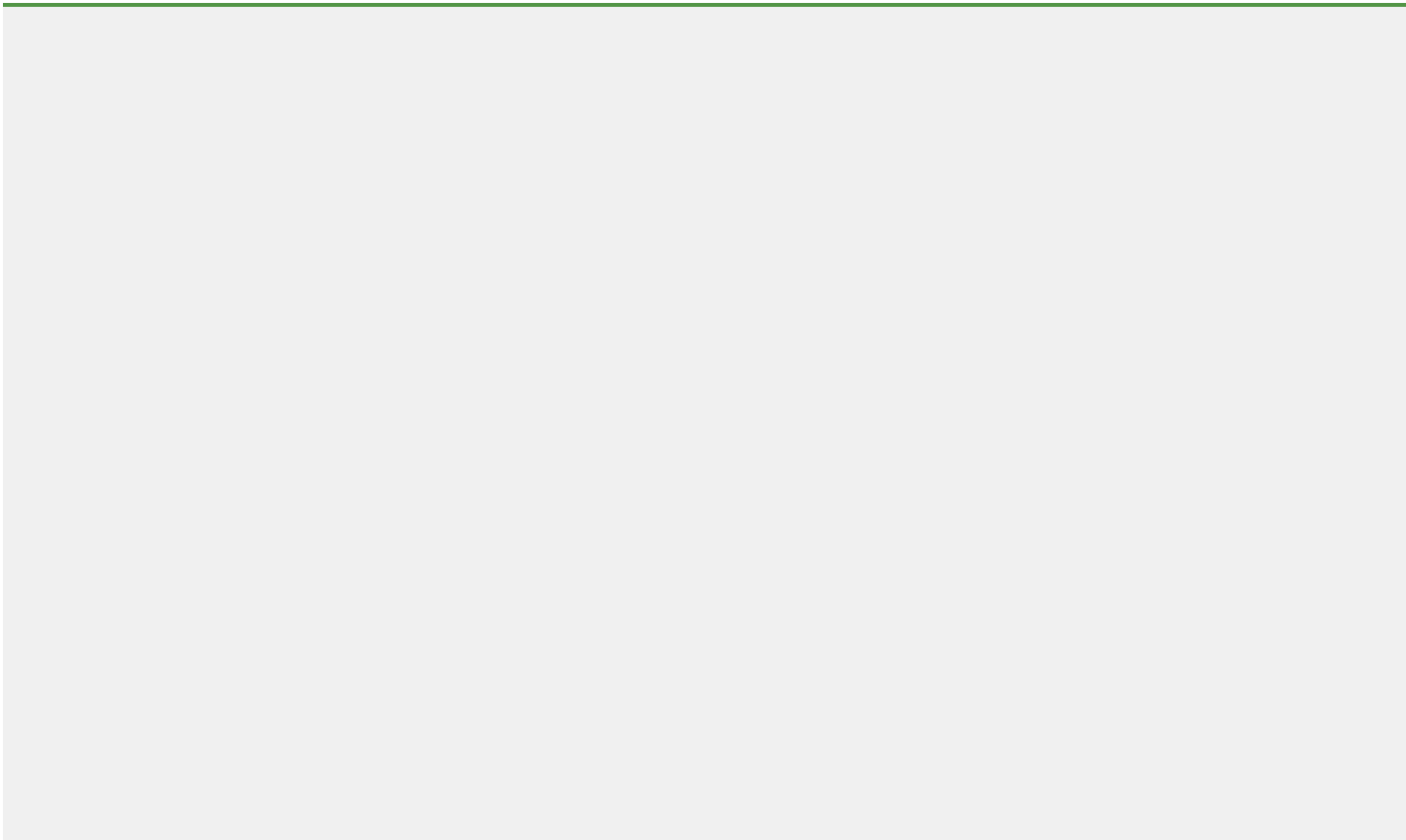
U.S. Army member helps clear debris from Tyndall Air Force Base following Hurricane Michael. *U.S. Army*

Pentagon: Climate Change is Real and a 'National Security Issue'

The Pentagon released a Congressionally mandated [report](#) (pdf) that warns [flooding](#), [drought](#) and [wildfires](#) and other effects of [climate change](#) puts U.S. military bases at risk.

The 22-page analysis states plainly: "The effects of a changing climate are a national security issue with potential impacts to Department of Defense (DoD or the Department) missions, operational plans, and installations."

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Protesters interrupt the confirmation hearing for Andrew Wheeler on Capitol Hill Jan. 16 in Washington, DC. *Chip Somodevilla / Getty Images*

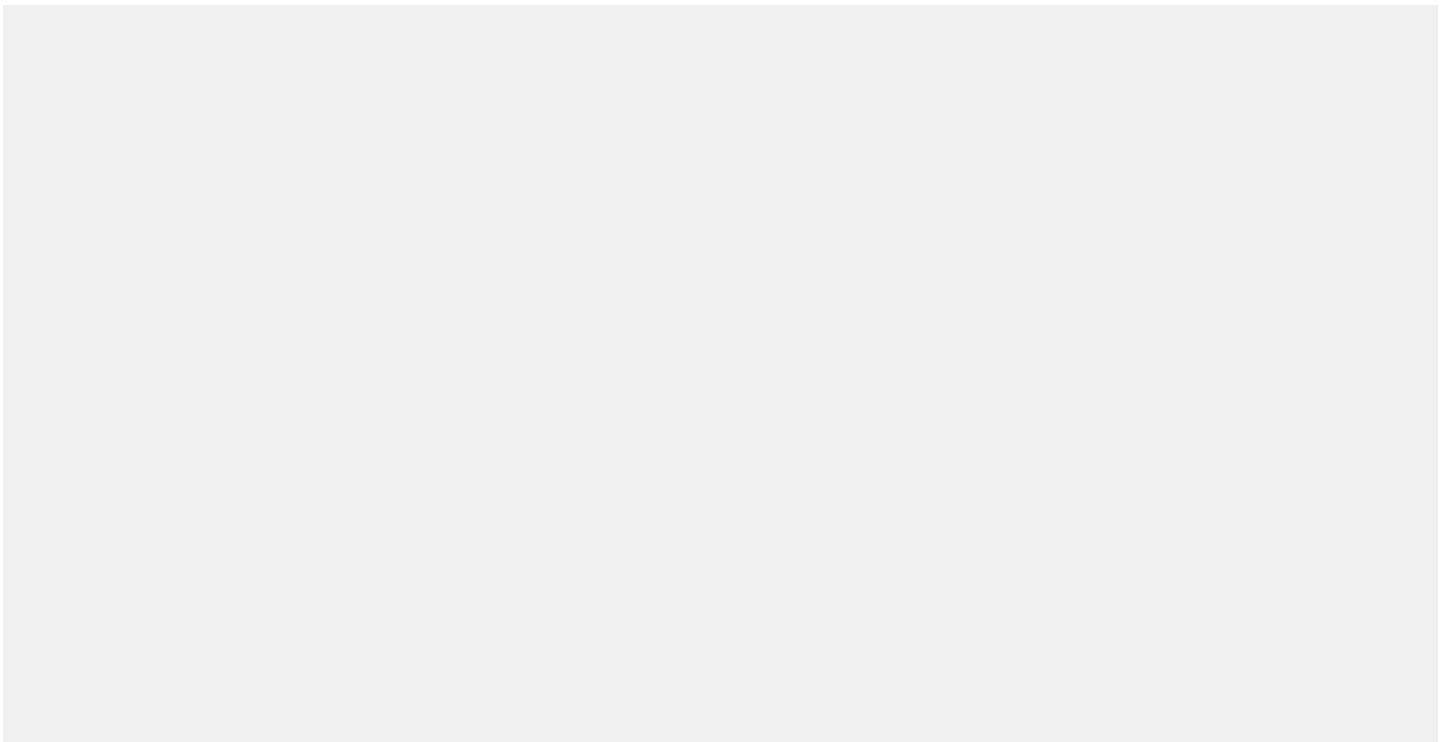
5 People Calling Out EPA Acting Head Wheeler for Putting Polluters First

This week, people across the country are joining environmental leaders to speak out against the nomination of **former coal lobbyist** Andrew Wheeler to lead the the U.S. Environmental Protection Agency (EPA). As Scott Pruitt's hand-picked successor, Wheeler has continued to put polluters over people, most recently by using the last of his agency's funding before it expired in the government shutdown to **announce plans** to allow power plants to spew toxic mercury and other hazardous pollution into the air.

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Lorraine Chow
Jan. 18, 2019 02:06PM EST

Popular

Great white shark. *Elias Levy / Flickr / CC BY 2.0*

Marine Biologists Raise Flags About Viral Great White Shark Encounter

By now you might have seen Ocean Ramsey's [rare and jaw-dropping encounter](#) with a great white shark in waters near Oahu, Hawaii.

Ramsey, a marine biologist, said on the [TODAY Show](#) that it was "absolutely breathtaking and heart-melting" to be approached by the massive [marine mammal](#).

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A tree found severed in half in an act of vandalism in Joshua Tree National Park. *Gina Ferazzi / Los AngelesTimes / Getty Images*

Wall Before Country Takes Mounting Toll on Americans Everywhere

By Rhea Suh

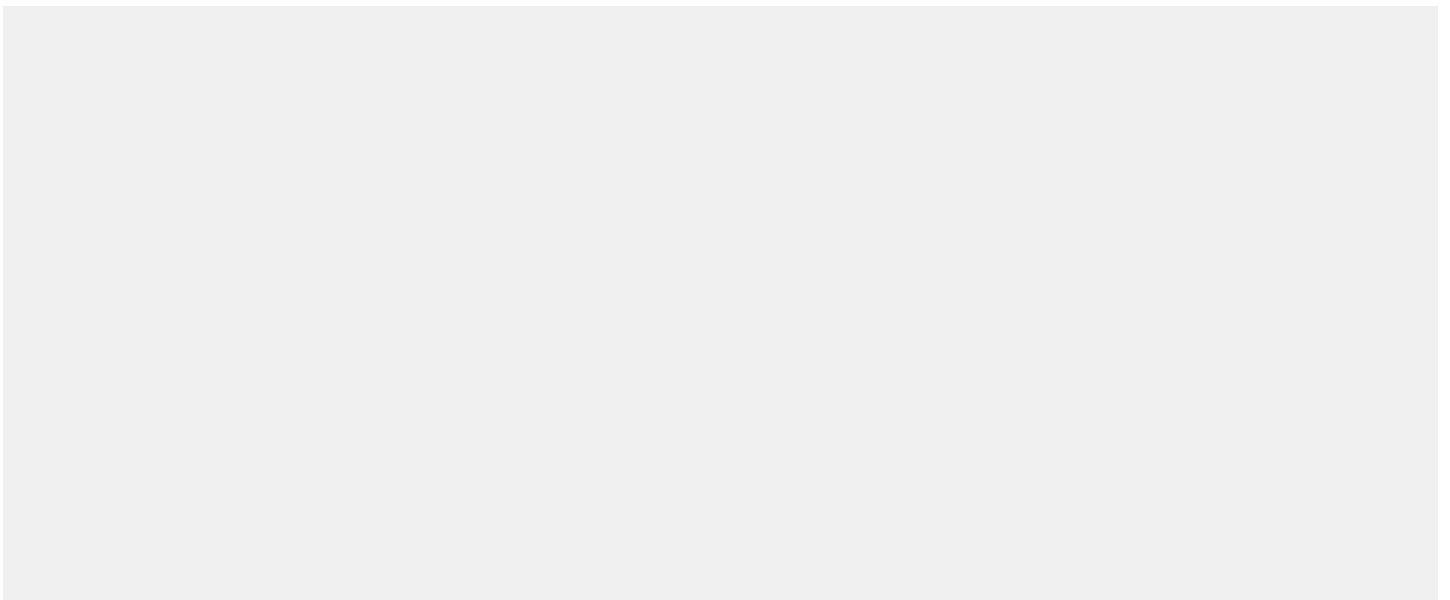
One month on, the longest and most senseless U.S. government shutdown in history is taking a grave and growing toll on the environment and public health.

Food inspectors **have been idled** or are **working without pay**, increasing the risk we'll get sick from eating produce, meat and poultry that isn't properly checked. **National parks** and public wilderness lands are overrun by vandals, overtaken by off-road joyriders, and **overflowing with trash**. Federal testing of air and water quality, as well as monitoring of pollution levels from factories, incinerators and other sources, is on hold or sharply curtailed. Citizen input on critical environmental issues is being hindered. Vital research and data collection are being sidelined.

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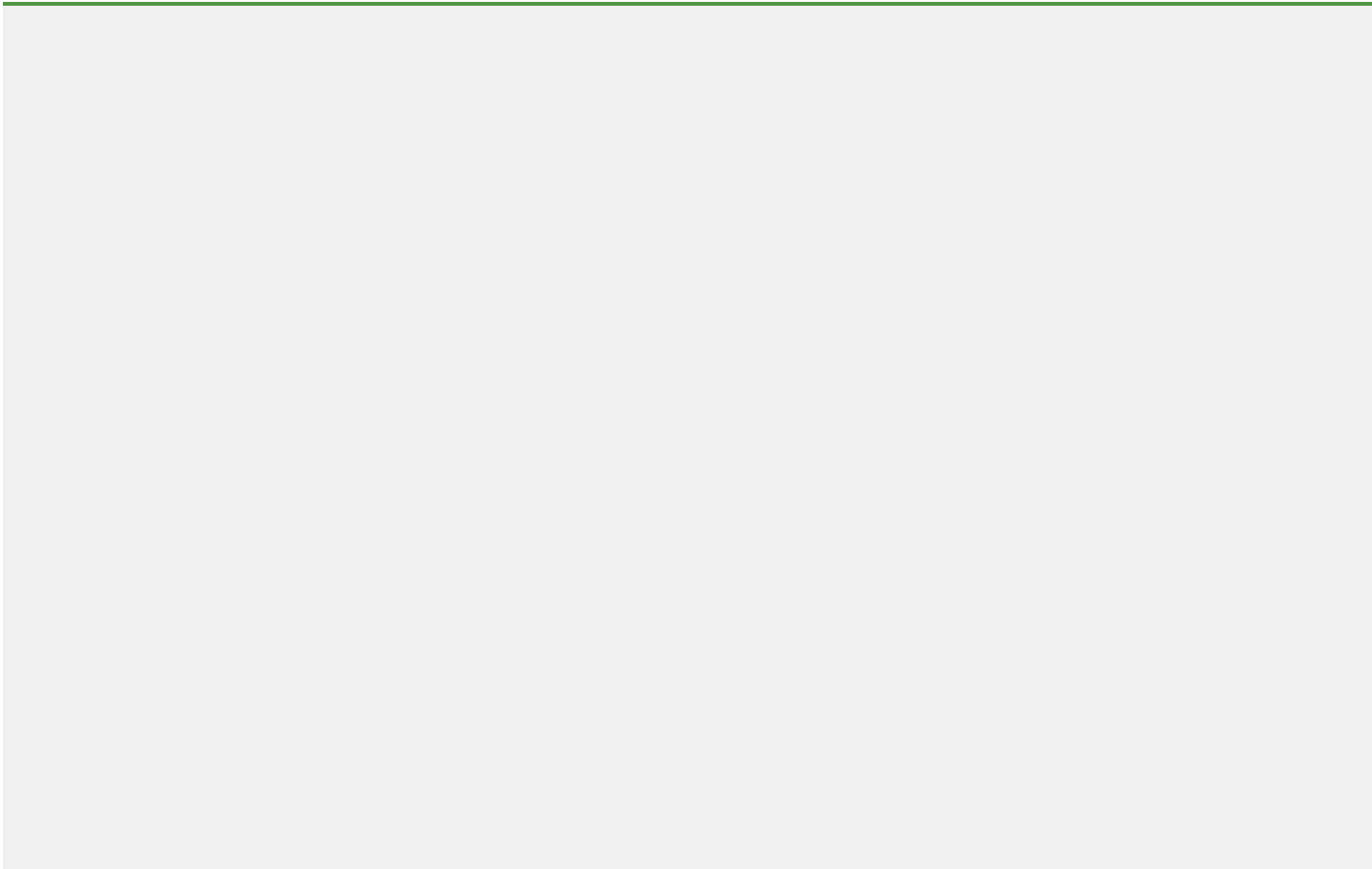


The W. A. Parish Power Plant, owned by NRG Energy, is one of the largest coal-fired power plants in the U.S. *Roy Luck / CC BY 2.0*

All Coal-Fired Power Plants in Texas Found Leaking Toxins Into Groundwater

Power plants across Texas are leaching toxins into groundwater, according to new research. A report released this week from the Environmental Integrity Project found that all of the state's 16 coal-fired power plants are leaching contaminants from coal ash into the ground, and almost none of the plants are properly lining their pits to prevent leakage.

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Martin Luther King, Jr. National Historic Site. *NPS*

MLK National Park to Re-Open Despite Shutdown, Thanks to Delta

Hats off to Delta Air Lines. The company's charitable arm awarded the National Park Service an \$83,500 grant to help reopen the [Martin Luther King Jr. National Historical Park](#) in Atlanta from Jan. 19 through Feb. 3 in honor of Dr. King's legacy.

The Atlanta-based airline was inspired to act after learning that some of the park's sites, including Dr. King's birth home, Ebenezer Baptist Church, Fire Station No. 6 and the visitor center, were closed due to the [partial government shutdown](#), now on its 28th day, according to [LinkedIn post](#) from Delta Air Lines CEO Ed Bastian.

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