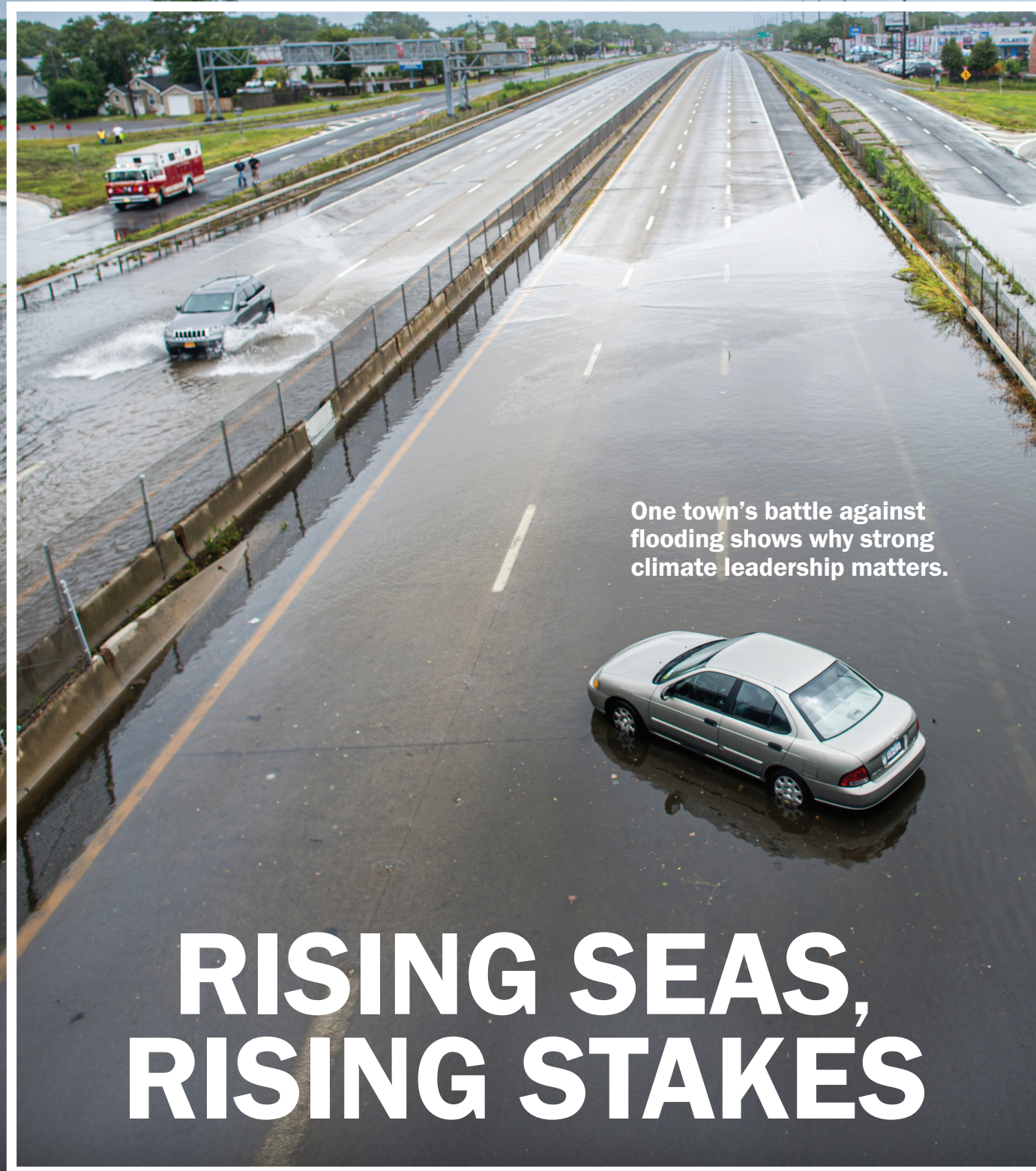


# SOLUTIONS



Vol. 56, No. 2 / Spring 2025



One town's battle against flooding shows why strong climate leadership matters.

## RISING SEAS, RISING STAKES

ALSO INSIDE: Arizona water win | Mining victory in the Amazon | High-tech methane hunt





# A conservation success story

The red-cockaded woodpecker, an iconic Southeastern bird, has been reclassified from endangered to threatened on the endangered species list. The bird’s population has quintupled since the 1970s, when loss of its longleaf pine forest habitat had substantially reduced its numbers.

EDF played a pivotal role in the woodpecker’s recovery by pioneering innovative Safe Harbor Agreements, which encourage landowners to protect habitat. EDF also championed public partnerships that have helped add 2.2 million acres to the bird’s native forests. “These milestones showcase the success of the Endangered Species Act,” says Will McDow, who directs EDF’s work in creating climate-resilient coasts and watersheds, “and the power of partnerships in preserving biodiversity.”

# Meeting threats with resolve



During my 40 years at EDF, I’ve experienced many challenges to environmental progress. But I’ll be direct: The threats we face today are unprecedented.

The moves have been rapid and relentless. The new administration has worked to dismantle the vital protections of the Clean Air Act, by asserting, contrary to prior Environmental Protection Agency guidance and U.S. Supreme Court rulings, that the government lacks the power to curb climate pollution. EPA programs protecting

the most vulnerable were among the first targeted.

This administration has also set us back in the global clean energy race by withdrawing the U.S. from the Paris Climate Agreement and halting federal investments in clean energy.

We are confident that many of these attacks are unlawful. And EDF is already in court fighting back to protect the progress we’ve made in recent years.

The impacts of climate change are increasingly visible worldwide. For example, 70 miles east of EDF’s New York office, residents of Mastic Beach have been experiencing 40 days a year of sunny-day flooding due to rising seas. (*See cover story, p. 8.*)

Despite the federal setbacks, we are making progress elsewhere. In Washington state, by a vote of 62% to 38%, voters overwhelmingly turned back an attack on the state’s landmark cap-and-invest program. It has used pollution fees to incentivize emissions reductions and provide more than \$2 billion for investments ranging from free public transit to renewable energy projects. When the program came under attack, EDF was part of the diverse and powerful coalition that successfully defended it. Now, other states like New York and Maryland are exploring following Washington’s lead. (*See p. 5.*)

And high above us, EDF’s methane-hunting satellite, MethaneSAT, is circling the planet, exposing pollution that other satellites can’t see. (If you’re interested, it’s releasing its data on a public portal: [data.methanesat.org](https://data.methanesat.org).)

Cutting methane remains the fastest way to slow global warming. And so far, MethaneSAT’s data shows what EDF experts have long suspected: Methane pollution from the oil and gas industry far exceeds official estimates. Most of the pollution is coming from widespread, small sources rather than big, super-emitter events. This new data will help slash emissions worldwide. (*See p. 13.*)

There are significant obstacles ahead, but also major opportunities to make progress. With our uniquely effective combination of science, economics, law and nonpartisanship, EDF was built for a moment like this.

*Fred Krupp*  
Fred Krupp, EDF President

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# SOLUTIONS

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# Chicago runs on renewables

Chicago, the third-largest city in the United States, now powers its more than 400 city-owned buildings — including firehouses, libraries and two major airports — using renewable energy.

The shift is expected to slash the Windy City’s carbon emissions by 290,000 metric tons annually, the equivalent of the pollution from 62,000 cars.

“Chicago’s efforts are a model for other state and city officials,” says EDF energy policy specialist Curt Stokes. “EDF has long advocated clean energy, delivered affordably and equitably, and we congratulate the city for leading the way.”

Most of Chicago’s power comes from a massive solar array in central Illinois. Built over the last two years, the solar project created hundreds of new jobs in the state.

Part of the city’s successful transition to clean energy is owed to the Climate and Equitable Jobs Act of 2021, an Illinois law with policies EDF championed. The act aims to reduce climate pollution while creating a clean-energy workforce.

Chicago got serious about transitioning to 100% renewable energy during the first Trump administration, when advocates began calling for local climate action in the absence of federal leadership.

“We have a responsibility to lead through climate action that benefits the people and the planet,” says Angela Tovar, Chicago’s chief sustainability officer. “By moving to renewable energy for city operations, we’re moving closer to our goal of making all energy consumed in Chicago renewable by 2035, and ultimately to a more sustainable future for all.”



ISTOCKPHOTO/GETTY IMAGES

# Red Dye No. 3 is out

That bright red cherry on top of your ice cream sundae? The pink frosting on your kid’s birthday cake? For decades in the U.S., these have been made with a synthetic dye that’s linked to thyroid cancer. But that’s about to change.

In the last days of the Biden administration, the federal Food and Drug Administration announced a long-overdue ban on Red Dye No. 3. The decision marks a major win for science-backed regulation and decades of advocacy. It comes after more than 30 years of pressure from EDF and our allies to eliminate the dye from food and drugs. (Responsibility for enforcing the ban now falls to Trump administration Health and Human Services Secretary Robert F. Kennedy, Jr.)

Red Dye No. 3’s color made it a staple in products appealing to children, such as lollipops, fruit cocktails and frostings. Yet, studies dating back to the 1980s raised concerns about its safety. Research indicated that the dye induced cancer in male rats, leading to its ban in cosmetics and topical drugs in 1990.

The U.S. now joins other nations that have already restricted or banned Red Dye No. 3 in food. EDF has also petitioned the FDA to ban methylene chloride, a chemical linked to liver cancer; it is widely used to produce decaffeinated coffee.

“The FDA shouldn’t stop there,” says Maria Doa, who directs chemicals policy for EDF. “Cancer-causing chemicals have no place in our food.”



ISTOCKPHOTO/GETTY IMAGES



CLIMATE CORPS/EDF

# Innovation in motion

EDF’s Climate Corps fellowship program pairs ambitious grad students with top-tier companies and organizations seeking to improve their impact on the environment. Last year, fellows partnered with the African American Mayors Association to help four cities — Charlotte, North Carolina; Chicago; Cleveland and St. Petersburg, Florida — electrify their fleets and make sure electric car charging is available to all. They were among 182 Climate Corps fellows working in the U.S., China and India.

# Climate action wins

Voters in Washington state fend off attack on popular program.

**W**HAT DO FREE PUBLIC TRANSIT, restored salmon habitat and new renewable energy projects have in common?

They’re all projects funded by a landmark Washington state program, which raises money for social and environmental projects while cutting emissions from heavily polluting industries.

Since its launch two years ago, the program, which requires companies to slash pollution, has brought in more than \$2.5 billion to support such efforts. These on-the-ground benefits enjoyed by everyday people are a big part of the reason why a campaign led by Brian Heywood, who poured millions of his own fortune into an effort to scrap the program, fell flat on its face in November.

“If you’re looking for a ray of hope in last year’s elections, look to Washington state,” says Caroline Jones, a senior analyst at EDF. “A whopping 62% of voters shot down the ballot initiative to take this program away.”

EDF was part of a diverse and powerful coalition of over 500 organizations, including tribal nations and labor unions, that helped protect Washington’s cap-and-invest program by showing how it was already delivering for people in the state. EDF advocacy also helped show that the

state would miss out on a further \$9 billion over the next five to eight years if the program is scrapped.

Washington’s cap-and-invest program reduces greenhouse gas pollution by setting a declining limit on total emissions in the state — that’s the cap — and letting businesses buy and sell allowances to cover their emissions. Companies that pollute less can sell their allowances, creating an economic incentive to lower their carbon footprints. Over time, the number of allowances available will be reduced, eventually bringing down the total emissions in the state to near zero by 2050. The “invest” part means that revenue generated from selling these allowances is reinvested in projects that boost resilience, support clean energy and promote environmental justice within the state.

Among the projects funded are energy bill rebates and home energy efficiency upgrades for low-income residents; the clearing of brush to prevent wildfires; new electric ferries; expanded pedestrian walkways and bike lanes around schools to make it easier and safer to get to class without a car; and solar panels and battery storage for libraries, churches and schools to reduce emissions and create a network of local emergency relief centers.

“Lots of states have climate goals,” says Jones. “Some of them are even legally binding. But Washington is one of the few states that actually has a policy in place to make sure it meets its goals.”

62%

Percentage of Washington voters who supported the state’s innovative cap-and-invest climate program in November.

Source: Associated Press

Spurred by the overwhelming public support evident in last November’s ballot vote, Washington state can now move full steam ahead on linking its program to similar programs in California and Quebec, which have been linked for over 10 years. Joining forces with these other two markets to create one big market will make the whole system more stable, predictable and cost-effective. This, in turn, creates the right conditions for the markets to become even more ambitious in their emission reduction goals in the future.

California has long been a leader in using market-based approaches to curb pollution. Over the past 10 years, California’s program, which EDF helped establish and strengthen over time, has supported 30,000 new jobs and delivered \$11 billion to more than half a million projects, including nearly 1,300 new or expanded transit projects and more than 12,000 affordable housing projects. In 2024, 11 million Californians received automatic savings on their electricity bills, thanks to the program. Statewide, emissions have dropped 8% just since 2019.

California environmental regulators are in the process of lowering the cap even further to help drive down emissions faster to meet the state’s climate goals.

“Washington is a really powerful example to other states looking at starting their own cap-and-invest programs,” says Jones. “Maryland, New York, Vermont: Take note. You don’t have to be as big as California to make this work. There are real economic, social and environmental benefits to be realized. And when put to the test, real people want them.”

Joanna Foster



Kids now ride transit for free, thanks to revenue from Washington state’s climate program.

# THE WILSON LEGACY

This feature honors the memory of Robert W. Wilson, a long-time EDF supporter and champion of harnessing market forces to drive environmental progress. See [edf.org/wilson](https://edf.org/wilson)





# Restoring the rivers, reclaiming the land

Indigenous communities are winning the fight to stop illegal gold mining in the Amazon.

By Tom Clynes



Kayapó women guide their boats through rapids in the northern Amazon rainforest.

**I**N BRAZIL’S NORTHERN AMAZON, WHERE muddy rivers snake through ancient rainforests, life is returning to a fragile equilibrium. This vast region, home to the Yanomami and other Indigenous cultures, as well as unparalleled biodiversity, has been besieged by illegal gold mining. Invading miners have decimated ecosystems and communities, carving scars into the land and poisoning rivers.

Now, a remarkable transformation is underway. Indigenous communities, supported by EDF and Brazilian partner Instituto Socioambiental (ISA), are making significant strides in the fight against illegal mining on their lands.

The livelihoods and cultural traditions of the Yanomami, Kayapó, Munduruku and other Indigenous peoples are deeply intertwined with their forest landscapes. Yet, under former president Jair Bolsonaro (2019–2023), criminal networks expanded deep into legally protected territories.

Gold drew waves of wildcat miners — known as *garimpeiros* — to the region,

leaving a trail of environmental and social destruction. Mercury and other toxic chemicals used to extract gold contaminate rivers, threatening aquatic life and the health of communities. Mechanized dredging and forest clearing release greenhouse gases, weakening the Amazon’s role as a carbon sink.

“**Illegal gold mining brings devastation on multiple fronts. ... It’s about communities losing their autonomy and their ability to live sustainably.**”

— Estêvão Senra, ISA researcher

“Illegal gold mining brings devastation on multiple fronts,” says Estêvão Senra, a researcher with ISA. “It’s not just about deforestation or contaminated water. It’s

about communities losing their autonomy and their ability to live sustainably.”

The Yanomami, for instance, have suffered violent attacks and skyrocketing malaria rates as flooded mining pits became breeding habitats for mosquitos. A recent survey found mercury in hair samples from every participant tested in nine Yanomami villages. Mercury is a highly toxic element that can cause serious health problems, even at low levels of exposure.

## From inertia to action

Supported by EDF and the Stiefel Behner Charitable Fund, Senra and his team studied the gold supply chain and proposed strategies to curb the laundering of contraband gold. For years, legal loopholes, corruption and political inertia had allowed mining to flourish within organized crime networks. Beginning in 2013, a “good faith” rule enabled miners to present unverifiable paper receipts to prove their gold’s legality.

By 2021, more than half of Brazil’s roughly \$5 billion in gold exports had illegal origins. Much of this gold ends up in North America, Europe and Asia for use in jewelry, electronics and investments. Due to the lack of transparency in global supply chains, consumers often have no knowledge of whether illegally mined gold is present in the products they buy.

**\$2.5 billion**

Approximate value of illegally mined gold exported from Brazil in 2021.

Source: Instituto Escolhas

The tide began to turn in early 2023 when Brazil’s Supreme Court upheld a government crackdown on illegal gold mining in Yanomami territory. Informed by work from organizations like ISA, President Luiz Inácio Lula da Silva declared illegal mining on Yanomami lands a humanitarian crisis.

Using satellite monitoring and intelligence from Senra’s team, Brazilian government agencies launched operations to rout the miners from Yanomami land. Over several months, authorities destroyed airstrips, burned barges and seized fuel supplies.

“In October, I flew over areas I had flown over in 2022,” Senra recalls. “The difference was mind-blowing. Where there were hundreds of mining barges, now there are none.”

Senra visited Palimiú, a Yanomami community that had been attacked by armed *garimpeiros* in 2021. “I was bathing with residents in the Uraricoera River, and they were splashing and laughing,” he says. “The water is clear again, and they can fish and hunt safely.”

New regulations are also dismantling the infrastructure of illegal mining. The “good faith” rule has been replaced with stricter requirements for electronic tax receipts, forcing miners to verify gold origins.

## Lifting Indigenous voices

As stability returns to Yanomami territory, the government is broadening its campaign in the northern Amazon. Last year, government agents began removing illegal miners from Munduruku land in Pará state. Similar strategies are planned for 2025 in Kayapó and Ye’kuana territories, among roughly 20 Indigenous territories severely affected by illegal mining.

ISA is training Yanomami leaders to use drones, GPS tools and apps to monitor and report illegal activities. “This technology allows communities to defend their forest in nonviolent ways,” says Senra.



ISA’s Estêvão Senra

“This is about lifting up Indigenous voices and supporting them as they address the deep-rooted challenges they face,” says Steve Schwartzman, who directs tropical forest policy at EDF. “The problems are complex and far from resolved, but we are moving in the right direction.”

Indeed, significant challenges remain for traditional communities in the northern Amazon. Criminal networks still profit from illegal mining, often smuggling gold across the porous border with Venezuela. Political and judicial pressures could undermine hard-won gains.

“The recent successes don’t mean the problem is completely resolved,” Senra cautions. “But the situation has stabilized, particularly in Yanomami territory.”

Senra recently visited the Papiú area, where the Yanomami are planting crops, hunting and planning to construct a new school.

“To imagine these lands without invaders once seemed like an improbable dream,” Senra says. “Now that the miners are leaving, it’s very touching to see these communities emerging from the shadows of violence, planning for their future.” ■



A Yanomami man surveys an illegal mining site before the crackdown.

REUTERS/BRUNO KELLY



# TROUBLE AT HOME

On flood-prone Long Island, New York, one resident is now uniquely positioned to help fight rising seas.

By Liz Galst

**M**AURA SPERY STOPS HER PICKUP truck by the side of an inlet near her home in Mastic Beach, New York, about 70 miles east of New York City. She gestures out over the marsh grasses, still green in the December light.

“Look at that,” she says. The rolling tide gleams. The sun breaks through after a day of drizzle and clouds.

“Where does a painting contractor afford a view like that?” asks Spery, speaking of herself. She has lived for more than two decades in this small town on Long Island, the hefty, oblong isle that juts out east of Manhattan more than 100 miles into the Atlantic.

“I have blue herons flying overhead. I have an owl that hoots in my yard. I eat the best seafood you could ever eat,” she says of this coastal community, where she served as mayor from 2015–2017.

This working-class hamlet isn’t exactly a seaside Eden, though.

## Rising waters take a toll

Mastic Beach is facing a growing threat. As the climate warms, ice sheets and glaciers are melting and warmer ocean waters expand, causing sea levels to rise.

Flooding was once an occasional nuisance here. Now, when the moon is full and tides are high, for about 40 days a year, roads near the water are practically impassable.

Spery and others are trying to help their hamlet stave off and prepare for rising waters. The Mastic Beach Conservancy she leads is dedicated to building an elevated trail that will help protect marshes that buffer flooding while enabling residents to take in the shoreline’s natural beauty. Nearby, WNBA all-star turned oyster farmer and environmental advocate Sue Wicks grows kelp that absorbs climate-polluting carbon dioxide. Not far offshore, there’s a



EPA Administrator Lee Zeldin

ANNA MONEYMAKER/GETTY IMAGES

wind farm under construction that will supply clean electricity to nearly 600,000 Long Island homes.

But because reducing the pollution that is driving sea-level rise requires national and international attention, it is mostly out of the hands of locals.

That is, except for one. Lee Zeldin, the Trump administration’s new Environmental Protection Agency administrator, lives just up the road in the neighboring hamlet of Shirley.

The agency he leads is the one most responsible for helping the U.S. cut the climate and health-harming pollution that is hurting Mastic Beach, along with com-

“The challenges are going to come. But we know how to defend them, because the law and science are clear, and we’ve protected crucial safeguards for people and communities before.”

— EDF general counsel Vickie Patton

munities across the country and around the world. The EPA creates and enforces pollution standards for most of the nation’s largest sources of this pollution — cars and trucks; power plants; oil and gas drilling; and methane-emitting landfills. These safeguards, along with Biden-era laws and policies, could take a big bite out of climate pollution and change the grim outlook for Mastic Beach. But in a Trump administration stacked with climate deniers, it’s hard not to wonder: Will Lee Zeldin help his neighbors sink or swim?

## Flooding is a nonpartisan issue

Every two months, State Assemblyman Joseph P. DeStefano, a Republican from nearby Medford, convenes a meeting to discuss flooding in Mastic Beach.

A December gathering at the Mastic Beach Yacht Club — a setting not as posh as its name would suggest — brings



Former Mastic Beach Mayor Maura Spery

LIZ GALST

together local officials, community members and nonprofit group representatives, Spery included, in a nondescript function room. The assemblyman begins the session with the pledge of allegiance and a prayer.

Quickly, the group gets down to business, addressing questions about efforts to elevate one of the seaside roads to keep it above water, a nearly \$1 million project.

Then there is the issue of Riviera Drive, once located about 40 yards inland, but now battered by the tides and sinking under the weight of parked cars. Could the town put up some no parking signs to help keep the road from collapsing?

Also, what about building more underpasses or overpasses to make sure residents aren’t held up at railroad crossings in the event of an evacuation?

As the meeting closes with handshaking and holiday wishes, the assemblyman notes that the cost of his flood insurance has doubled in recent months.

## Salt water is bad for business

Out in the club parking lot, the water is already starting to rise. It’s bad business for the yacht club.

“This parking lot — you can’t drive down the street unless you want to have salt water in your car,” says Spery, who had to ditch her minivan because of salt water damage to the undercarriage.

Minivans aren’t the only vehicles at risk. “We’ve sometimes had the water 3 feet high,” says Fire Commissioner Bill Biondi, who’s been a firefighter in Mastic Beach for 53 years. “I mean, it’s a big enough issue that if the roads get flooded, we’re not taking our \$1 million fire truck down there.” To answer calls when the roads flood, the



fire department has had to purchase special Army surplus high-water trucks, with cabs four or five feet off the ground.

It wasn't always this way. "I would say things really started getting crappy around here right after Superstorm Sandy," says Biondi. Since that monster 2012 storm, the vast beaches he played on as a kid have almost disappeared.

Biondi says the company has yet to have an instance where they weren't able

to help people in emergency situations. But the potential is there. As new flood-risk maps the National Oceanic and Atmospheric Administration published last summer show, U.S. coastal waters are only expected to rise.

### What can the EPA do?

If the country stays the course on current climate laws and EPA standards, pollution from cars and trucks, now the largest sources of climate pollution in the U.S., could drop by nearly 50% by 2032. Power plant pollution could fall by as much as 90%, Methane leaks could fall 80%.

But President Trump has made it clear that he intends to contest critical EPA climate and clean air standards. And already, Zeldin has signaled his desire to overturn the EPA's Endangerment Finding, which enables the agency to regulate climate pollution. However, this and other EPA health-protective safeguards would need to go through

a lengthy process to prove they were misguided or unnecessary.

"The challenges are going to come, but we know how to defend them, because the law and science are clear, and we've protected crucial safeguards for people and communities before," says Vickie Patton, EDF's general counsel.

Of course, unbound by rule-of-law considerations, the Trump administration could simply choose not to enforce the standards already on the books. That decision would largely fall to Zeldin, whose home lies safely up the hill from Sperry and her neighbors in Mastic Beach.

When it comes to climate change, Zeldin has said he is "not sold yet on the whole argument that we have as serious a problem as other people are."

Sperry, whose home lies about 50 yards from the bay, would argue otherwise. After Hurricane Sandy, with taxpayer help, she and her partner had their home elevated 14 feet to protect against future flooding.

From the living room windows, one can look out across to the soothing sea. For the moment, the water is calm. The tide has receded.

What does the future hold for the people of Mastic Beach?

That, in some part, rests in Lee Zeldin's hands. ■



Long Island's coastal communities are at risk from rising seas.

GETTY IMAGES

## Standing strong: How EDF is defending U.S. climate progress

Since Inauguration Day, the Trump administration has moved aggressively to destroy dozens of environmental protections. How is EDF responding? We caught up with Joe Bonfiglio, head of EDF's U.S. region, who is leading our effort to defend America's climate progress from a hostile administration.

**Q: At press time in March, EDF experts were working to safeguard the climate provisions in the Inflation Reduction Act. Can you provide details on that?**

**A:** The IRA provided some \$370 billion in clean energy incentives, mostly in the form of tax credits for companies and consumers. President Trump and his allies in Congress pledged to repeal the measure and use the funds to pay for his own policy priorities.

To stave off a full repeal, we are focusing on our relationships with members of the

House. With bipartisan support for tax credits and a historically slim Republican majority, working with House members provides the most practical path toward preserving the IRA's climate-friendly clean energy tax credits. This is difficult, resource-intensive work, but worth it.

**Q: How does EDF's history of working across party lines help?**

**A:** We believe in building bridges; our team has met with dozens of both Republican and Democratic lawmakers. We share compelling, local data with them — like our polling that shows voters in key Republican districts support keeping the IRA's energy tax credits by an almost 30-point margin.

We have also been elevating local voices. For example, we have been talking to business leaders in key districts who are benefitting from climate-friendly policies and sharing those stories with

Congressional leaders to bring the economic benefits of clean energy to life.

**Q: Are you optimistic that EDF will be able to protect climate progress?**

**A:** I've seen growing bipartisan recognition that clean energy investments create jobs and economic opportunities in communities across America. I'm optimistic that we can build on this momentum by continuing to activate lawmakers to secure key climate policies while also defending crucial environmental protections in court. Plus, state and local action, like our work promoting electric trucks in California, will continue.

But I'm also a realist. Without a serious and sustained effort to check this administration, President Trump will do real, lasting damage. So, we must persevere. There is no other choice.



## Water in the desert

A rural Arizona community finally wins protection for its vanishing water supply.

In Arizona, increasingly scarce water supplies irrigate thirsty crops like this corn.

**S**TEVE KISIEL BUILT HIS DREAM house in the high desert east of Tucson, Arizona, with a garden and views of seven mountain ranges. The well on his property — the sole source of water — was 370 feet deep, and recently drilled. "There was a reasonable supply, and it seemed stable," says Kisiel.

That was in 1998. In 2012, his well ran dry. The water level had dropped more than 100 feet.

### Pumping Arizona

"In 75% of Arizona, there's no limit to how much water you can pump," says EDF's Chris Kuzdas, who works on water issues in the state. "Whoever's got the longest straw can come and take as much water as they want, for free."



Steve Kisiel and Governor Katie Hobbs

GOVERNOR HOBBS SOCIAL MEDIA

And come they did. In 2014, a Saudi Arabian conglomerate began growing alfalfa in Arizona to feed the kingdom's cattle. Corporate growers planted pistachio and pecan orchards where scrubby mesquite once grew. In 2014, a Minnesota-based dairy operation bought a cattle feedlot near Kisiel's house in Cochise County, expanding it from about 10,000 animals to more than 150,000, drilling hundreds of wells, some more than 2,000 feet deep.

"You might as well stick a billboard right on I-10," says Kisiel. "Welcome to Arizona, come take all our water."

Nearly every drop of Cochise County's water comes from ancient underground deposits, where sparse rainfall has percolated through rock over millennia. Much of this water lies beneath a 2,000 square mile depression called the Willcox Basin.

In a 2023 report on the basin's water, state scientists wrote, "... there is insufficient annual supply to meet yearly demand under any projected scenarios."

### A community fights back

Dry wells are not the only sign of trouble. Around 2012, Janet Randall, a former cement worker, horseshoer and ostrich farmer who lives outside the town of Willcox, noticed cracks in her floors, and then her walls, a fracture in the kitchen wide enough to let in the desert sun. In other parts of the county, giant fissures heaved up chunks of road.

The diagnosis? With so much water being pumped out of the earth, the land was collapsing on itself. Official measurements show it had sunk 2.5 feet in 14 years.

For nearly a decade, concerned residents have been gathering information and discussing solutions, but consensus has been hard to build. In 2022, a groundwater protection measure on the ballot failed. Several bipartisan bills in the state legislature never made it out of committee. Fears of government overreach and accusations of outsider interference abounded.

But two years later, with more wells running dry, including in Willcox, where most of the basin's residents live, the tide had turned. In January, the state water department designated the Willcox Basin an active management area, putting a stop to any new irrigation. Major water users will have to conserve, measure and report their use.

Community members, with support from EDF, are working with water officials to develop a local management plan. The governor also invested \$60 million in water protection, including groundwater monitoring and research.

"For more than 40 years, rural communities who want to protect their groundwater supplies have been ignored," says Kuzdas. "Now people have hope that they can finally have a say in how they manage their own water, and their future."

In Willcox, Kisiel hopes a new management plan will encourage low-water-use rural economic development and bring the community together. "No one wants to see anyone go out of business," he says. "But we need a plan that's going to stabilize things in a reasonable amount of time. A lot of us won't be around when it gets there, but we want to make sure it gets off to a good start."

Shanti Menon



# Drones join the hunt for abandoned oil and gas wells

By Joanna Foster

**J**OHN KOLOJEJCHICK IS AN EXPERIENCED hunter. But on several occasions he had been stopped by other hunters in western Pennsylvania and asked what he was doing.

“They’d tell us it wasn’t hunting season, and we would just laugh and explain to these guys that even though we were wearing blaze orange, we weren’t out there for deer,” says Kolojechick, a retired high school science teacher from Oil City, Pennsylvania.

Kolojechick and a half-dozen other senior citizen volunteers were hunting a different kind of quarry — leaky, abandoned oil and gas wells that can pollute the air and water. Over the course of 16 years, they’ve found nearly 1,000 of them in just one state park in western Pennsylvania.

“Our record was 27 in one day,” said Kolojechick, who led the team of retirees. “There were just so many of them we would literally be tripping over them.

I had one volunteer who found one because he sat on it to take a break.”

Thanks in part to the work of Kolojechick’s group, hundreds of leaky, “orphan” wells — wells without a solvent owner on record responsible for closure and cleanup — have now been plugged by Pennsylvania’s Department of Environmental Protection. But the work is just getting started.

**A widespread threat**

Perhaps one million or more of these wells exist across the country, leaking climate-warming methane, contaminating groundwater and releasing harmful air pollution. They’ve been found under homes, schools, retirement communities and convention centers in 27 states, and many of them predate government recordkeeping.

EDF was instrumental in securing \$4.7 billion in funding from Congress in 2021 to tackle this issue. But states need to

document the location of wells that need plugging in order to apply for the money.

In Pennsylvania, where the nation’s first commercial oil well was drilled in 1859, the Department of Environmental Protection relied on old, paper coal-mine and farm maps, university partnerships, outside contractors and volunteers like Kolojechick to locate unregistered wells. But it was a labor-intensive process, and — without funds to plug all the wells they already knew about, let alone the hundreds of thousands yet to be discovered — it was a low priority for the Commonwealth.

**Taking to the sky**

Last fall, EDF and partners launched three state-of-the-art drones into the skies of northwest Pennsylvania to join the hunt. Flying at an altitude of about 100 feet, the drones are equipped with GPS and advanced magnetic sensors that can detect metal well casings underground.

They’re also outfitted with methane detectors to identify any emissions from leaking wells.

In just two weeks, the team identified 260 possible well sites in eight square miles, including well casings buried 30 feet below ground, which are nearly impossible to detect from ground surveys.

Now that the sites have been identified, state environmental officials are sending out ground crews to verify the findings, and researchers from the Department of Energy, EDF and McGill University are slated to visit the wells to quantify their methane emissions. The drones will fly again this year to survey an additional 12 square miles of land.

**1 million**

**Estimated number of leaking, abandoned oil and gas wells in the U.S.**

Source: *Environmental Science & Technology*

The goal is to create a simple, cost-effective way to map undocumented orphan wells, so that Pennsylvania and states across the country can get the resources they need to finally address this festering climate and public health threat. In addition to climate-polluting methane, wells can leak benzene and other cancer-causing and toxic chemicals into the air, surface water and groundwater.



Volunteers have found almost 1,000 abandoned wells in a single Pennsylvania state park.

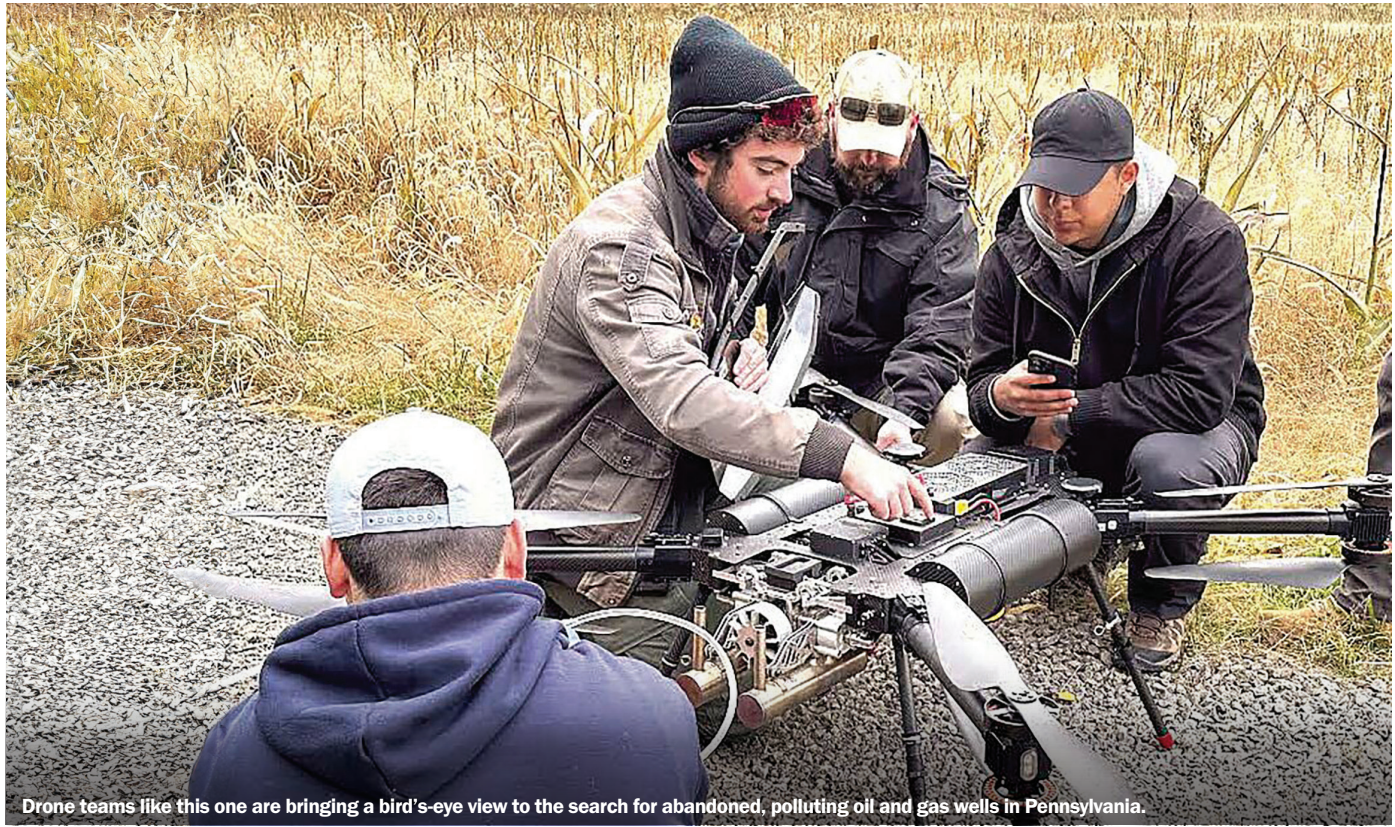
“It’s not going to get better if we just leave them alone. It can only get worse,” says energy attorney Adam Peltz, who directs EDF’s orphan wells advocacy.

Although the Trump administration is slashing federal environmental programs, Peltz is cautiously optimistic that funding for plugging wells will be spared.

“This funding was passed with bipartisan support, and it helps regular people in states from coast to coast to address a serious health and safety concern, all while creating family-sustaining jobs,” he says.

Kolojechick, now 80, says his days of trekking through the woods for hours hunting for undocumented orphan wells are over. But he is excited to see the work continue and that the issue is finally getting the attention and resources it deserves.

“If you’re my age and grew up in this part of Pennsylvania, you probably used to play on oil and gas drilling equipment,” said Kolojechick. “It was just part of the landscape. But I’m hopeful we can finally address that toxic legacy and offer kids today something better.” ■



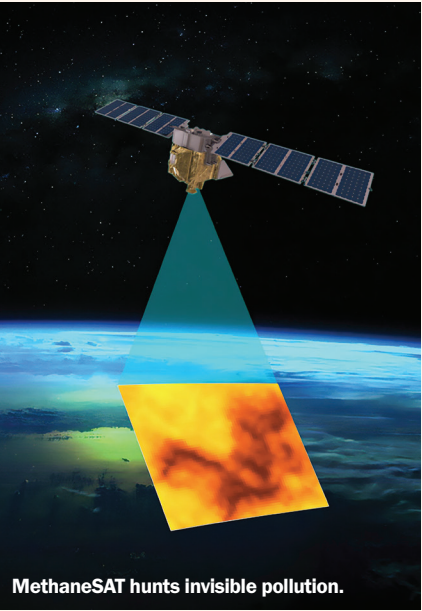
Drone teams like this one are bringing a bird’s-eye view to the search for abandoned, polluting oil and gas wells in Pennsylvania.

## MethaneSAT update

Cutting emissions of methane, a powerful climate pollutant, is the fastest way to slow global warming. Drones are a great way to pinpoint methane pollution in a small, target area. But global oil and gas operations cover vast territory, with hundreds of thousands of miles of pipelines, innumerable storage tanks and other potentially leaky infrastructure. That’s why, in 2024, EDF launched a first-of-its-kind satellite to track methane pollution and help identify problem areas around the world.

MethaneSAT is now releasing data on its public portal, [data.methanesat.org](https://data.methanesat.org). Anyone — from oil and gas industry executives to government regulators to scientists to you — can see what MethaneSAT uncovers.

Already, MethaneSAT is exposing evidence of pollution that other satellites can’t see, and so far, this more complete picture bears out what EDF has long suspected. Oil and gas methane pollution greatly exceeds official estimates, and in many regions, most of the pollution comes from numerous, widespread, small sources rather than big super-emitter events. Addressing a myriad of small leaks will be key to reducing methane pollution. It’s not technologically complex or costly to do so. And 55 oil and gas companies, representing 45% of global sales, have pledged to cut their emissions by an average of 90% by 2030. State and national governments are also working to reduce methane pollution. MethaneSAT will be there to monitor results.



MethaneSAT hunts invisible pollution.



# How to talk about climate change (so that people listen)

It's hard to solve a problem without talking about it. But bringing up climate change doesn't exactly make you the life of the party. Here are some tips that can help.

## Focus on SOLUTIONS

Most people are worried about climate change. They just don't know what they can do about it. So look for moments when you can share simple solutions. For example, if food waste comes up while clearing the dishes, you might mention the value of composting. Food is a great topic because wasting less of it is one of the most effective things individuals can do to fight climate change, says EDF climate scientist Fiona Lo.

In fact, there are lots of things individuals can do to help stop climate change. If the person you're talking to shows interest, you can even share this EDF story with them: [bit.ly/5-big-things](https://bit.ly/5-big-things)

## If you disagree, don't attack — ASK QUESTIONS

"When asked gently to explain our own positions, we are more likely to see the holes in them," says EDF's Rainer Romero-Canyas, a social scientist who studies the way people think, feel and behave regarding environmental issues. "But if you antagonize someone, most people will just double-down on their ideas."

For instance, if someone says that the Earth is flat, you might ask them where they learned that or why they believe that. If you start by hearing someone out and asking for evidence, you can then counter false information with facts more easily, Romero-Canyas explains. If the conversation doesn't go well, remember that it can be hard for people to accept that they may be wrong. Instead of belaboring a topic, consider sharing a link to correct information that they can look at later. Then move on.

## Find opportunities for CONNECTION

"Facts, numbers and details have less impact than we think they do," says Romero-Canyas. Instead of trying to prove a point with statistics, talk instead about why you care. For example, if your child has asthma and struggles to breathe on days with poor air quality, you might talk about how air pollution not only exacerbates climate change, but also asthma. (EDF affiliate Moms Clean Air Force has great resources to help.)

Think of the goal of your conversation as planting a seed rather than winning an argument. And if things do get heated, take a step back. "You want to create understanding, not conflict," Romero-Canyas says. "The most important thing is to focus on building genuine connections with the people you're talking to." After all, trust is what ultimately wins people over and creates lasting change.

Vanessa Glavinskas



## ★ YOU GOT THIS DONE!



Rachel Herring believes in putting power into local hands.

# Grassroots clean energy

WHEN RACHEL HERRING JOINED the U.S. Department of Energy's Indian Energy Program in 2021, her life changed.

With a master's degree in environmental policy, she had always thought she'd take a corporate sustainability job. But working directly with communities changed her perspective on the best way to make lasting environmental progress.

Herring is a member of the Choctaw Nation. But her job with the Indian Energy Program was the first time she had ever worked with an all-Native team. For two years, she crisscrossed the country helping bring new solar and wind installations to tribal lands, including a project that brought electricity — clean electricity — to a number of homes in the Navajo Nation for the very first time. She also made policy recommendations on how to make the clean energy transition fairer to communities.

"These weren't just clean energy projects," Herring says. "Getting electricity for the first time was transforming people's daily lives."

Since 2010, the Indian Energy Program has funded more than 240 energy projects, bringing 63 megawatts of clean energy to tribal lands — enough to power about 11,000 buildings. But what struck Herring most about the program was the

localized nature of the projects.

"Every community has unique needs," says Herring. In the Navajo Nation in the sunny Southwest, "Solar makes perfect sense because of the landscape. But other regions might benefit more from wind or hydropower. The key is letting communities lead these decisions."

Herring, who previously served in EDF's Climate Corps program, is now researching how the clean energy transition is affecting rural communities worldwide as a part of a Ph.D. program at Stanford University. (Climate Corps places graduate students at leading companies and organizations in the U.S., China and India, and challenges them to help those organizations become more sustainable. The program started in 2008 and has placed nearly 2,000 fellows.)

She recently spent a year in rural Japan as a Fulbright-National Geographic fellow to better understand how new solar and wind installations are changing the lives and livelihoods of rural farmers and fishers. Her goal is to write a book advocating for decentralized energy systems that put power, literally, back into local hands.

"I believe that environmental solutions have to come from the ground up," Herring says. "It's the best way to ensure a successful transition to clean energy."

Vanessa Glavinskas



WE'RE ALL EARS

Got an environmental success story you want to share? Let us know at [editor@edf.org](mailto:editor@edf.org).

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