Solutions

EDF
ENVIRONMENTAL DEFENSE FUND
Finding the ways that work

Vol. 53, No. 1 / Winter 2022

This is methane

It's making the planet hotter, faster. EDF is moving the world to meet this urgent threat.

INSIDE: Small farms, big ideas | Pennsylvania's climate plan | How to fight fake news

Pint-sized predators

In California, drought and development have stripped the endangered San Joaquin kit fox of both habitat and food. But help is at hand. Thanks to an EDF-sponsored bill, California will spend $50 million to help drought-plagued farmers repurpose some of their cropland to less water-intensive uses, such as public parks, rangeland and the native scrublands the kit fox calls home.

DONALDQUINTANA.COM

COP26: Taking stock

Now that the crowds have departed and Glasgow, Scotland, is no longer the center of world attention, it's possible to see more clearly what the COP26 climate conference achieved — and what it didn't.

First and foremost, this COP, with its 197 attending nations, agreed that climate change is what the lead Chinese delegate called it: an "existential" threat to all. That threat, painfully realized in last year's multiple climate-related natural disasters, made the need for progress more urgent than ever. And, in the end, there was progress.

THE METHANE MOMENT More than 100 countries pledged to cut methane emissions by at least 30% by the end of this decade. EDF's groundbreaking work has been crucial in revealing the devastating climate threat methane poses to the world (*see cover story, p. 8)*. Now we must hold countries accountable for those cuts and more.

SAVING FORESTS Last spring, the United States, Norway and the United Kingdom joined with major corporations to form LEAF (Lowering Emissions by Accelerating Forest Finance), a coalition to create an international market enabling private companies to pay tropical nations for large, verifiable reductions in deforestation. EDF helped establish LEAF's infrastructure and recruited many of the participating companies. At COP, LEAF announced it had mobilized an initial $1 billion for the project and that 23 jurisidictions had submitted eligible proposals to participate.

FLYING RIGHT EDF and the RMI announced the Sustainable Aviation Buyers Alliance which will slash emissions from aviation by promoting the adoption of sustainable jet fuel (*see p. 13*).

MOBILIZING CAPITAL After years of negotiations, countries finally reached agreement on the rules needed to govern international carbon markets. This could prove the biggest breakthrough of COP26. Robust, accountable markets will enable wealthy nations and companies to reduce emissions faster, while increasing the flow of revenue to developing nations to fund everything from preserving tropical forests to building renewable energy facilities. EDF, and in particular our vice president for global climate, Kelley Kizzier, was critically involved in the final, down-to-the-wire negotiations.

EDF has worked for years, in some cases decades, on LEAF, methane, and many of the other key issues addressed in Glasgow. We are already pushing to transform the plans and promises made there into action. That kind of enduring commitment is only possible thanks to our supporters. Whether fighting to save tropical forests or helping cut emissions in U.S. states (*see p. 10*), it is your generosity that enables EDF to pursue our vision of a vital Earth for everyone.

Fred Krupp
EDF President

In this issue

On the cover: This image of global atmospheric methane on December 10, 2017, was created by NASA's Scientific Visualization Studio using multiple sets of emissions data.

Senior managing editor	**Tasha Kosviner**
Senior writer/editor	**Shanti Menon**
Editor at large	**Peter Edidin**
Contributing writers	**Tom Clynes**
	Joanna Foster
Design	**Tink Tank Studio**
Photo editor	**Paula Trotto**
Project coordinator	**Kat Rossos**
Talk with us	**editor@edf.org**

Solutions

ENVIRONMENTAL DEFENSE FUND
EDF's mission is to preserve the natural systems on which all life depends. Guided by science and economics, we find practical and lasting solutions to the most serious environmental problems.

257 Park Ave. South, New York, NY 10010
212-505-2100

Support our work
Donate online at edf.org/newsletter or by mail: EDF, Member Services, 1875 Connecticut Ave. NW, Ste. 600, Washington, DC 20009. For inquiries, contact 800-684-3322 or email members@edf.org.

New York / Austin / Bentonville, AR / Boston / Boulder / Raleigh / San Francisco / St. Petersburg, FL / Washington, DC / Beijing / Jakarta / La Paz, Mexico / London

EDF ENVIRONMENTAL DEFENSE FUND
Finding the ways that work

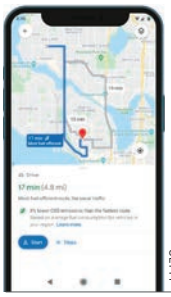
FIELD NOTES

Restoring America's bedrock environmental law

The White House Council on Environmental Quality has taken the first steps to restoring and strengthening the National Environmental Policy Act, the Magna Carta of environmental law. NEPA requires federal agencies to consider the impacts of major projects such as highways and pipelines and gives communities a voice in determining what is built in their midsts. The Trump administration attempted to gut NEPA by ignoring climate and environmental justice impacts and limiting public input. EDF, with many allies, fought these actions in court.

The new rule, expected to be finalized in early 2022, requires agencies to evaluate all environmental impacts of their proposed projects, meaning that climate change and environmental justice must once again be factored into decisions. The Biden administration has also committed to additional action to further strengthen NEPA.

"As Congress makes plans to invest hundreds of billions of dollars in infrastructure upgrades across the nation, NEPA is more important than ever to make sure these major projects take into account impacts to communities and climate," says EDF Senior Attorney Rosalie Winn.



GETTY

Driving smarter

Driving somewhere and want to reduce the total emissions of your trip? Google Maps now includes eco-friendly routing, which automatically shows you the most fuel-efficient way to go.

ALAMY.COM

25% One-quarter of U.S. critical infrastructure — including police and fire stations, hospitals, airports and wastewater treatment facilities — is at risk due to flooding.

Source: First Street Foundation

Jane Appleseed

Primatologist Jane Goodall has created Trees for Jane, a campaign to support global forest protection and restoration and encourage individuals to plant trees of their own. Trees for Jane is part of a global campaign aimed at growing Earth's tree cover by one-third by 2030.

ALAMY.COM

50% In a first-ever national study of more than 1 million U.S. children under six, half had detectable levels of lead in their blood. No level is considered safe.

Source: JAMA Pediatrics

GETTY

Rolling back the rollbacks

1 Companies whose operations kill or injure migratory birds will once again be held accountable. The U.S. Fish and Wildlife Service is restoring protections under the Migratory Bird Treaty Act. The Trump administration attempted to shield companies from legal consequences unless it could be proved that they were intentionally killing birds.

2 The Department of Labor has issued a proposed rule making it clear that retirement plan managers can integrate risks posed by climate change alongside other risks in 401(k) investment decisions. This action reverses a Trump-era rule designed to limit consideration of environmental, social and governance factors.

MEET EDF

Natasha Vidangos

Senior Director for Climate Innovation and Technology

Your title sounds intimidating. What do you actually do?

Ultimately, reining in climate change requires new solutions. So I work across the federal government to increase investment in innovation and encourage its rapid deployment.

You're pretty new to EDF. What drew you here?

I always admired EDF's balance of science, pragmatism and focus on the big issues. And I respected the way it held itself accountable for achieving real progress.

In the face of climate change, what gives you hope?

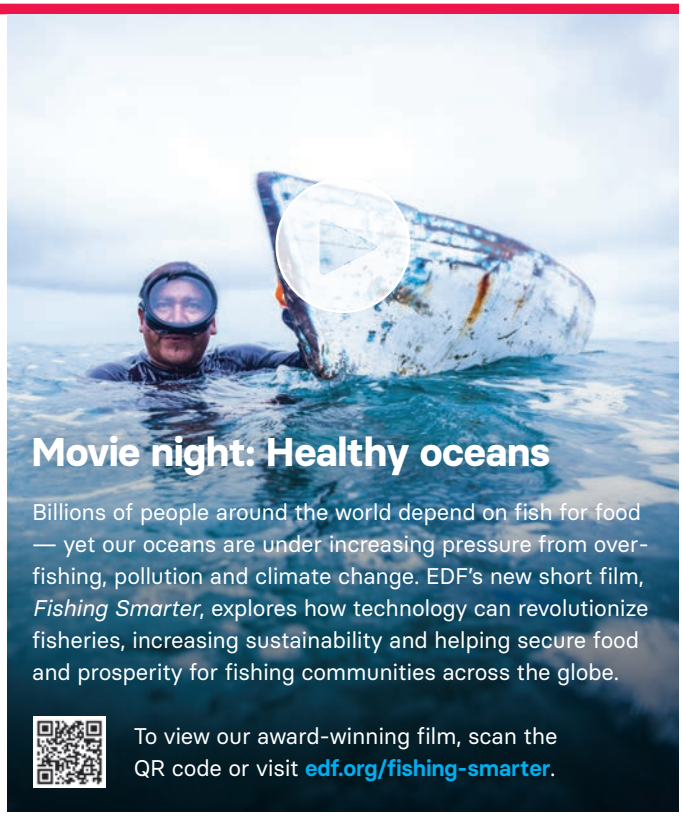
Well, when you work on innovation, every obstacle is an opportunity. For example, it's hard to decarbonize steel production, but I work with people who just see it as a creative problem to solve. I love that.

You have three young children. Does that alter your perspective?

Absolutely. I feel like, to earn my place on Earth, I must do everything I can so that my kids will inherit a livable planet, as well as a sense of responsibility for keeping it that way.

Can you tell us something surprising about yourself?

If I'm in a bad mood, I play the accordion.



JASON HOLST/ON

Movie night: Healthy oceans

Billions of people around the world depend on fish for food — yet our oceans are under increasing pressure from overfishing, pollution and climate change. EDF's new short film, *Fishing Smarter*, explores how technology can revolutionize fisheries, increasing sustainability and helping secure food and prosperity for fishing communities across the globe.

To view our award-winning film, scan the QR code or visit **edf.org/fishing-smarter**.

FDA to hair dye manufacturers: Stop spreading lead on heads

ALAMY.COM

Faced with a threatened lawsuit from EDF, the Food and Drug Administration announced that it is reinstating a 2018 ban on lead acetate in hair dyes. For decades, the agency permitted the use of such dyes, having concluded that low levels of lead in the body were safe. But after EDF and others presented new evidence contradicting that finding, the FDA banned the chemical, only to reverse itself after a major hair dye manufacturer inaccurately claimed that the skin-soluble lead in its products was safe. The FDA's reinstatement of its ban now aligns it with the scientific consensus that any exposure to lead is unsafe for children and adults, says Tom Neltner, EDF's chemicals policy director. "Now the agency needs to do more to drive down consumer exposures from all sources of lead in food, cosmetics, bottled water, metal cans and brass faucets," says Neltner.

GETTY

Small farms, big ideas

In North Carolina, EDF is helping family farmers try out new techniques to keep their working lands alive in a changing climate.

By Tom Clynes

Fifth-generation farmers Millard and Connie Locklear.

LOYDVISUALS.COM

"WE'VE BEEN HARVESTING THESE since June, and they just keep on coming," Connie Locklear says as she ducks under a translucent canopy that shelters five varieties of heirloom tomatoes. A broad smile spreads across her face as she surveys the bounty of red, yellow and purple fruit.

"Back when we planted them in the field we'd only get four weeks, if we were lucky."

It's late September at New Ground Family Farm, which Connie owns with her husband, Millard. Both Locklears identify as Lumbee Indians whose ancestors worked the land on North Carolina's coastal plain for centuries.

"We can trace our own family farm back at least five generations," Millard says.

For farms with such a long lineage, change is inevitable. But the changes wrought by a warming climate have been dramatic. Global farming productivity is already 21% lower than it could have been without climate change, according to a recent Cornell University study, and small farmers are particularly vulnerable to increasingly frequent extreme weather events, including floods, droughts and heat waves.

EDF works with farmers, companies and others across the agriculture system to promote sustainable farming practices that reduce pollution and boost climate resilience — all while enhancing farmer income. Last year, EDF partnered with North Carolina Agricultural and Technical State University to study the financial impacts of such practices on small farms like the Locklears'. The results can inform efforts to scale up such practices in North Carolina — where agriculture and agribusiness contribute more than $90 billion to the economy each year — and beyond.

"Our goal is to learn from farmers and to spread the word about the benefits of practices that help both the environment and the bottom line," says Vincent Gauthier of EDF's Climate-Smart Agriculture team, who analyzed practices and profits at small farms at the forefront of the sustainability movement in North Carolina. The team will also make the data available to the farm finance industry, to encourage lenders to build sustainability practices into assessments when considering the terms of farm loans.

For the Locklears, high tunnels — the greenhouse-type structures that cover their heirloom tomatoes — have extended their growing season. The tunnels


Beverly Bowen is revitalizing the family farm.

LOYDVISUALS.COM

also provide shelter against extreme precipitation and temperature and make it easier to notice and contain insect damage.

"We were losing 40% of our tomatoes in the fields, but now 99% of them are sellable," says Connie, who worked with Gauthier to add up the costs and benefits. The calculations clarified the couple's hunches: A single high tunnel, which cost the Locklears $3,000 to purchase used, produces an extra $8,000 in revenue each year. "That's one heck of a boost to the bottom line," Connie says.

Cover crops and flash-grazing

One hundred twenty miles to the north, Blackwell's Farm is an oasis of dark-brown earth and emerald grass amid the red clay hills of North Carolina's Piedmont region. After retiring from a corporate career, Beverly Bowen returned to her family's defunct 60-acre farm in 2016 with the goal of revitalizing it.

Bowen realized early on that she would need to update her ancestors' approach to farming. "Growing up, I was always taught that you had to turn the soil," she says, as she lays out a bale of fresh hay that quickly draws a dozen black Angus cattle to the feast. "But the old folks didn't have all this extreme weather tearing away at the soil. If this farm was going to survive, I needed to find a better way."

With the support of her brother Seth Blackwell, the North Carolina Cooperative Extension and other organizations, Bowen began experimenting with techniques to improve soil health and overall sustainability.

Instead of disturbing the land and reducing fertility by conventional tilling, she now plants cover crops such as grains, daikon radish, or kale. The plants help to break up compacted earth, improve water infiltration, aid uptake of nutrients and suppress weeds and pests. Bowen also planted milkweed and other pollinator-friendly plants and preserved wooded areas for wildlife. She rotates her small herd in complex patterns through pastures, often 'flash-grazing' for short periods to preserve the tender rye grass and avoid soil compaction.

"Early on, I sometimes doubted myself because other farmers were telling me I was wasting my money. I have a son who studied agriculture and animal science, and he said, 'Momma, I'm only seeing dollars being put into it. When are you going to reap the benefits?'"

"Five years later, my son says now he sees the benefits. He notices that there's less storm runoff going into the pond, and the no-till approach has reduced my fertilizer bills by 30%. I've cut the number of passes I'm making with the tractor, which reduces fuel costs and greenhouse gases."

Looking to the future, Bowen says she'd like to teach other farmers how to make their farms more profitable and resilient. "If you don't stay on top of the changes, you're going to be out of the farm business," she says.

Building healthier soils

In North Carolina's mountainous northwest, Against the Grain farm produces certified organic and biodynamic vegetables and Animal Welfare Approved meats on 35 acres of pastures, croplands and woodlots.

"Up here it's all about microclimates," says Holly Whitesides, who owns and operates the farm with her husband, Andy Bryant. "Which fields get the early frost, which tend to stay wet in the spring, which dry out faster. That encourages the farmer to know the farm intimately. It's like being in a relationship, because it's always changing."

The couple purchased their farm in 2012 to realize their dream of growing food for the local community and supporting their family, which now includes three children.

"We just pulled up and said, 'Oh, this is home,'" Whitesides remembers. "It was totally a heart decision. Then we realized there was no topsoil. Extractive farming and erosion had left the land barren. I remember thinking, wow, we are really setting out on a journey of healing the land."

Against the Grain's strategy includes intensive composting, controlled grazing and innovative techniques such as keyline plowing — using a special plow that cuts deep furrows without turning over the soil. The furrows direct fast-moving rainwater away from vegetable fields and help to build sponge-like soil that holds moisture for plants during dry times.

"As time goes on, we see that the downpours are getting heavier, but our land is getting better at handling them, holding in nutrients and keeping them from washing downstream," Whitesides says.

Farming is already a challenging business, and experimenting with new techniques — particularly on a small farm — is risky. "These farmers' trials and errors, and their successes, are essential to building a knowledge base that will enable more farmers to thrive in a changing climate," says Gauthier.

"As a farmer, I really hope we can manage this big transition [to climate-resilient farming]," says Whitesides. "Because without farms, it's going to be hard for everyone to eat."


Holly Whitesides of Against the Grain farm.

LOYDVISUALS.COM

GETTY

The methane moment

Cutting methane is the fastest way to slow global warming. EDF revealed the truth about this once-obscure climate pollutant and galvanized the world to take action.

By Shanti Menon

COMPOSITE BY TINK TANK STUDIO USING IMAGES FROM NASA/SCIENTIFIC VISUALIZATION STUDIO AND ALAMY.COM

METHANE POLLUTION IS RESPONSIBLE for more than 25% of the global warming we are experiencing today. But because it doesn't last long in the atmosphere, methane's climate impacts were overlooked and underestimated for decades.

That has changed — most dramatically, in a flurry of action late last year. In September 2021, the EU and U.S. announced the Global Methane Pledge to cut methane pollution from all major sources, including energy and agriculture, at least 30% by 2030. In November, the U.S. proposed sweeping new regulations to reduce methane pollution from a leading source, the oil and gas industry.

Days later, more than 100 nations at the U.N. climate summit in Glasgow signed the Global Methane Pledge. In December, the EU proposed its first methane legislation.

By cutting methane pollution, the world is positioned, for the first time, to slow the rate of global warming and, in doing so, reduce the number of people at risk from rising seas, heat waves and floods, water shortages and air pollution.

SHUTTERSTOCK

Sometimes tightening a valve is all it takes.

"I never would have thought 12 years ago that the world would rally around this idea," says EDF chief scientist Steven Hamburg. "But now we're poised to make significant progress on a scale never seen before with any greenhouse gas."

How did the world reach this critical methane moment? EDF led the charge.

A man, a van, a plan

Hamburg's methane mission began some 15 years ago, when he was a college professor driving his students in a van powered by natural gas, which is mostly methane. Natural gas vehicles were believed to be better for the climate because they produced less carbon dioxide than conventional vehicles.

But what if, Hamburg wondered, his van were leaking fuel and sending methane — a short-lived but powerful climate pollutant — directly into the atmosphere? What if methane leaked across the entire oil and gas system, from the basins where the gas was extracted to the pump where he refueled his van? Might his choice of fuel be doing more harm than good?

Only after joining EDF was Hamburg able to dig deeply into this question. Starting in 2012, he and a team of EDF scientists led and helped coordinate more than 80 peer-reviewed studies involving hundreds of researchers that uncovered the truth about methane pollution. In 2018, EDF showed that U.S. oil and gas methane emissions were 60% higher than EPA estimates, enough to call into question the claim that natural gas was

D SCOTT CLARK PHOTOGRAPHY

METHANE'S LEGAL EAGLE

Rosalie Winn

A former corporate litigator, Winn came to EDF in 2016 to pursue her passion: fighting climate change. She joined just as EDF helped get the first federal methane rules in place. Then she spent the next four years fighting to defend them.

Trump EPA chief Scott Pruitt first tried to suspend federal methane rules in 2017, but Winn was ready to counterattack. She helped win a key court ruling that his maneuver had illegally sidestepped the regulatory process. That early victory gave EDF and our allies a powerful legal weapon to disrupt and delay the administration's repeated efforts to undo methane rules.

"We kept pushing back at every turn," says Winn.

Thanks to that relentlessness, the Trump EPA couldn't complete its methane rollback until the final months of the administration. That delay made it possible for the new Congress to undo the rollback, which then opened the door for the Biden EPA to propose even more protective methane rules.

"I wanted my work to have immediate and lasting impact," says Winn. "Working on methane allows me to make a difference in people's lives right now."

a clean fuel. In 2021, research led by EDF scientist Ilissa Ocko found that by using existing technology to cut methane pollution from all major sources in half by 2030, the world could slow the rate of warming by as much as 30%.

Worldwide action

Armed with the facts, EDF and our allies galvanized U.S. states, national governments and major oil and gas companies to take action to reduce methane pollution (*see timeline, far right*).

In November, citing EDF-led research, the EPA proposed stronger, more expansive methane rules that will, for the first time, cover methane pollution from one of the biggest sources — some 800,000 existing oil and gas wells across the country. The proposal reflects many of EDF's recommendations on how to monitor and control methane, based on our research in the oil fields of the Permian Basin.

In more than 100 flights over the past two years, research aircraft have spotted thousands of leaks in the Permian, which straddles Texas and New Mexico, some releasing a ton of methane per hour. A single leak like this can waste enough gas to supply 7,000 homes. This data has prompted companies to fix leaks that might have otherwise continued for months.

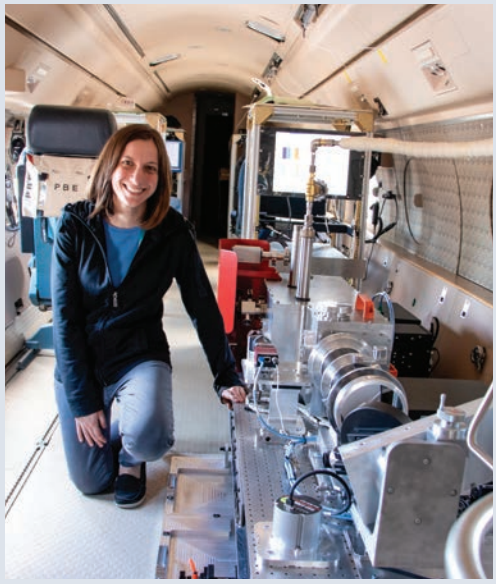
"The Permian is having a big impact on the climate," says EDF scientist David Lyon, who helped design and coordinate the Permian project. "But we're seeing that reductions are possible."

In Europe, the EU's proposed legislation covers methane pollution from coal as well as oil and gas and has provisions for measuring, reporting and verifying emissions. It also bans most venting and flaring — processes that intentionally release methane.

"Compared to carbon dioxide, methane had been like the unpopular brother," says EDF Europe's Dagmar Droogsma, a veteran climate negotiator. "But using strong science we were able to show that methane can quickly change the curve of global warming, and convince decision-makers of the urgent need to take action."

UP IN THE AIR

Jenna Samra



UCAR/SIMMI SINHA

"Building something that's never been built before, that can do something that's never been done before, is the reason I became an engineer and a scientist," says Samra, an astrophysicist at the Smithsonian Astrophysical Observatory.

Samra was presented with just such a challenge by the MethaneSAT team. They needed to test the system behind the world's most sensitive space-based methane detector — before it went to space. So Samra helped design MethaneAIR, the most sensitive instrument of its kind ever built — similar to what will fly on MethaneSAT. Then she and her team put it on a Gulfstream V research jet and flew over thousands of oil and gas sites in the Permian Basin. Data from those flights is giving scientists a critical head start to test the data-processing software for MethaneSAT, a months-long task that would otherwise have to wait until after the satellite launches.

Thanks to Samra's work, the world will get an accurate picture of methane emissions faster than hoped. And MethaneAIR will continue to fly even after MethaneSAT launches.

"We now have this incredibly sensitive methane detector that can fly anywhere in the world where we can get clearance," says Samra. "Need close-up methane measurements from landfills? The Arctic? We can do that."

LESLIE VON PLESS

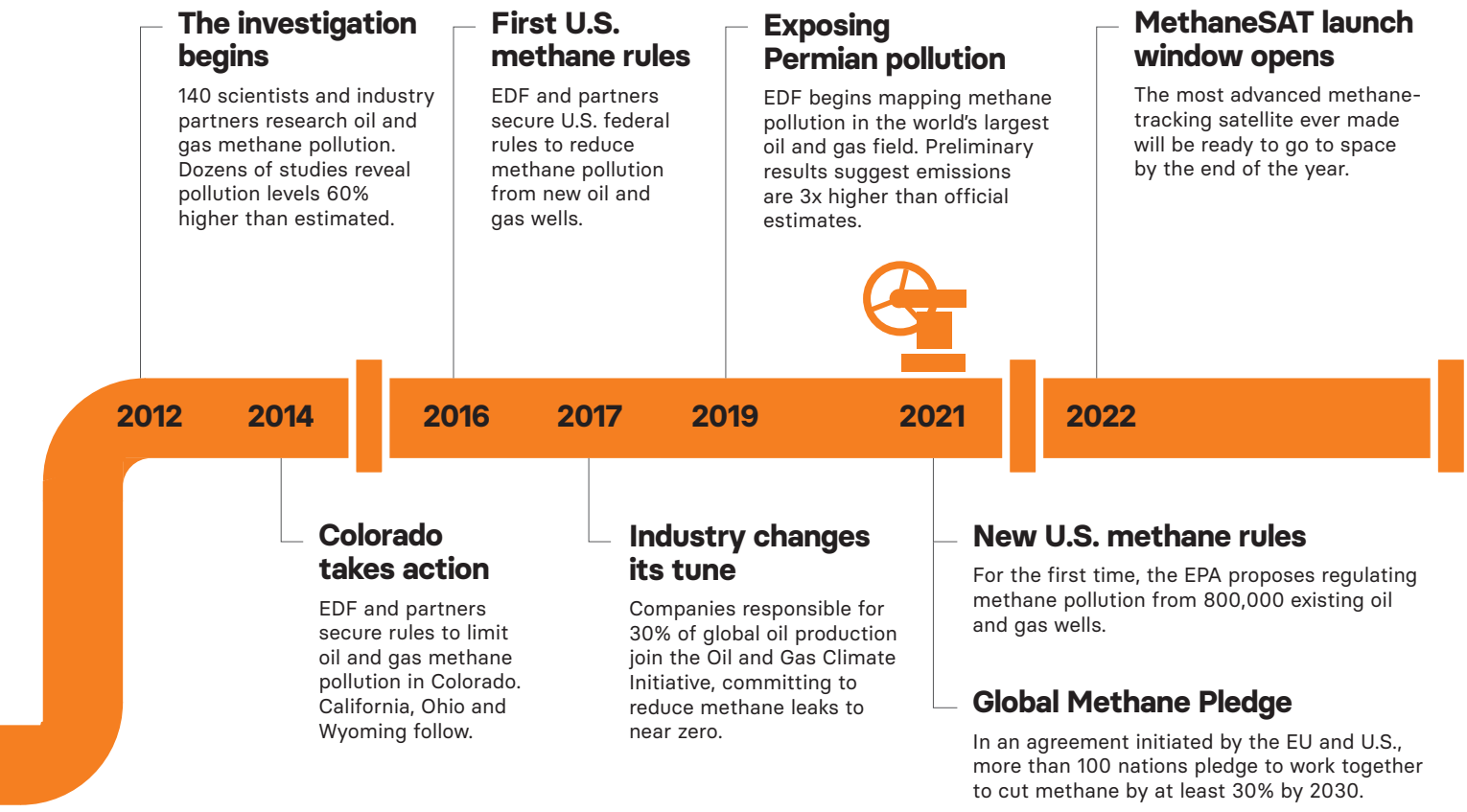
THE FRONTLINE ADVOCATE

Shaina Oliver

On the reservation, Oliver listened to Navajo elders reminisce about grass as tall as a horse's legs, waist-high snows and frogs that came out after it rained. "You don't see that today," says Oliver. "It's only getting hotter and drier on the reservation. People don't call it what it is, but that's climate change."

Oliver, who now lives in Denver, is an Indigenous rights advocate and an organizer for EDF affiliate Moms Clean Air Force, a million-strong grassroots group that advocates for clean air and climate solutions. Oliver has testified before the

Methane: A decade of EDF-led action



What's next?

With rules and pledges in place, the biggest challenge now is holding companies and countries accountable for controlling their methane pollution. That's why EDF affiliate MethaneSAT is building the most advanced methane-tracking satellite ever. Ready to launch by the end of the year, MethaneSAT will circle the globe every 100 minutes, locating and measuring methane pollution from almost anywhere on Earth, with greater sensitivity than any other satellite, and share results online free of charge.

Launching a satellite to spot methane involves actual rocket science, but "fixing oil and gas methane leaks is mostly plumbing," says Mark Brownstein, head of EDF's energy transition team. With rules and policies on the ground, satellites in the sky and wrenches in hand, the world will be fully equipped to reduce methane pollution.

Cutting methane is not a substitute for cutting carbon dioxide emissions, which control our long-term climate destiny. But, as a recent Intergovernmental Panel on Climate Change report emphasized, it is an essential step to avoid the worst impacts of climate change. "Reducing CO_2 is incredibly important and will benefit my grandkids," says EDF's Ocko. "But actions to reduce methane will help us right now." ■

Additional reporting by Tom Clynes and Joanna Foster

Colorado legislature and the EPA in support of strong oil and gas methane regulations, which also reduce the harmful air pollution that leaks along with methane.

"Having representation for Indigenous people is very important for climate action," says Oliver. "We've been left out of a lot of these agendas and infrastructure discussions, and that's why you see disparities."

Indigenous people around the world are on the frontlines of climate change, which is forcing relocations, disrupting traditional food and water supplies and making air pollution worse.

In the U.S., Indigenous people have higher rates of many diseases linked to air pollution, including asthma. Oliver herself was diagnosed with asthma as an infant.

"We need to cut methane to protect moms and babies from climate and air pollution," says Oliver. "I want to create a pathway for future Indigenous generations to have a space where they are not endangered. To have a future they will want to fight for."

PUBLICSOURCE

The people's climate law

Community groups led the creation of major new climate legislation in Illinois, making it the most equitable in the country.

For decades, Chicago's Little Village Environmental Justice Organization has fought to clean up pollution in the neighborhood. In 2012, LVEJO helped shut down a nearby power plant — one of the dirtiest in the nation — a tremendous clean-air victory in a community burdened by pollution.

The group envisioned converting the site to an indoor farm, as part of an innovative plan in which residents would use their agricultural skills to grow food to supply the neighborhood's many shops and restaurants. But the city signed off on a plan to build a one-million-square-foot warehouse on the site instead, which would bring hundreds of polluting trucks to the neighborhood. Then, adding insult to injury, a botched demolition on the site blanketed Little Village in a cloud of dust.

DANIELLESCRUGGS.COM

Community leader Kim Wasserman.

Kim Wasserman, head of LVEJO, had spent all night warning residents to stay inside and seal their doors and windows. More than a year later, she still breaks down as she recounts watching the cloud roll over homes. "We've been a sacrifice zone for too long," she says.

But Wasserman is not one to sit on the sidelines. While continuing to battle neighborhood polluters, she and LVEJO, alongside EDF and scores of partners, took the fight for environmental justice to the state level — and ensured that community voices were not ignored this time. As Illinois developed new climate legislation, community groups led the process and made the state's groundbreaking new climate law the most equitable in the nation.

Signed into law in 2021, the Climate and Equitable Jobs Act puts Illinois, the nation's sixth-largest carbon-emitting state, on a path to 100% clean energy by 2050. CEJA phases out carbon-emitting power generation by 2045 and prioritizes closing polluting units in communities overburdened by pollution first. It builds out clean energy jobs training for these communities. It sets a goal of getting one million electric vehicles on Illinois roads by 2030 and, crucially, mandates that 40% of investments in electrifying transportation should benefit environmental justice and low-income groups.

It was a hard-won victory, the result of a tumultuous, multiyear effort that included environmental justice organizations, clean-energy advocates, consumer advocates, labor unions and others, who sat down with utilities and legislators to hammer out a shared clean energy future for Illinois. EDF worked alongside community groups to design and lead the process, which included more than 100 listening sessions in every corner of the state.

"This process wasn't just informed by communities," says EDF attorney Christie Hicks, who led negotiations with utilities. "It was community led and community driven. CEJA is an example to the Midwest and states across the country that equitable climate legislation is achievable everywhere."

"It's a huge victory for labor and for environmental justice," says Madison Lisle of Warehouse Workers for Justice, a group that supports warehouse and transportation industry workers in Illinois and also worked on the bill. The law's provisions include rebates for electric vehicles that will help smaller companies invest in clean technology, as well as job training for workers impacted by closures.

For Wasserman, with one eye on warehouse development, the transition to electric vehicles promised by CEJA can't happen soon enough. EDF is working with utilities in Illinois and elsewhere to ensure their plans for electric vehicle charging prioritize communities like Little Village. "CEJA is not perfect, and the process wasn't pretty," says Wasserman. "But it was absolutely a step forward for Illinois."

Shanti Menon

Sustainable fuels cleared for takeoff

GETTY

EVERYONE LOVES TO GET AWAY BUT nobody likes the climate pollution associated with flying. Now EDF and partners are playing a leading role in addressing emissions from aviation, to help propel you to exotic destinations or far-flung family via a more sustainable flight path.

Spearheaded by EDF and RMI, the Sustainable Aviation Buyers Alliance is a group of leading companies and airlines dedicated to developing a market in sustainable aviation fuels. SABA's founding companies include Alaska and United Airlines, Amazon Air, Microsoft and Netflix.

Unlike petroleum-based jet fuel, the sustainable variety is produced from renewable crops such as switchgrass or poplar, or materials such as cooking oil and municipal waste. Sustainable fuels have the potential to significantly cut airplane emissions, and can be easily and safely mixed with conventional jet fuel.

"We have the technology to use these fuels now," says Pedro Piris-Cabezas, EDF's director of sustainable international transport. "With SABA, we are building on the lessons learned from policy and regulatory initiatives to create a comprehensive blueprint to scale up the use of sustainable aviation fuels and achieve net-zero emissions by 2050." Piris-Cabezas and the SABA team are developing a framework to ensure that companies purchase sustainable aviation fuel that promotes green development and does not negatively affect ecosystems or communities.

At the COP26 climate change conference in Glasgow last November, Pete Buttigieg, the U.S. transportation secretary, gave the keynote address for an event hosted by SABA and moderated by EDF President Fred Krupp on the future of sustainable aviation. Buttigieg stressed the importance of initiatives that help the aviation industry decarbonize. "SABA is helping not just to acknowledge or set ambitious targets, but to actually reach them," he said.

Aviation, a top-ten contributor to global warming, poses one of the toughest challenges in the fight against climate change. Although short-range electric and hydrogen airplanes are in development, they won't make a dent in emissions for decades — decades in which air travel is projected to increase by an average of 4.3% annually. The demand for jet fuel is expected to double from pre-pandemic levels by 2050.

"Getting more sustainable aviation fuel into planes is our best option in the near term, and yet due to supply and cost challenges, very little is used today," says Kelley Kizzier, EDF's vice president for global climate. "SABA adds momentum to efforts to support the market for high-integrity sustainable aviation fuels, by establishing a tracking system with robust environmental criteria."

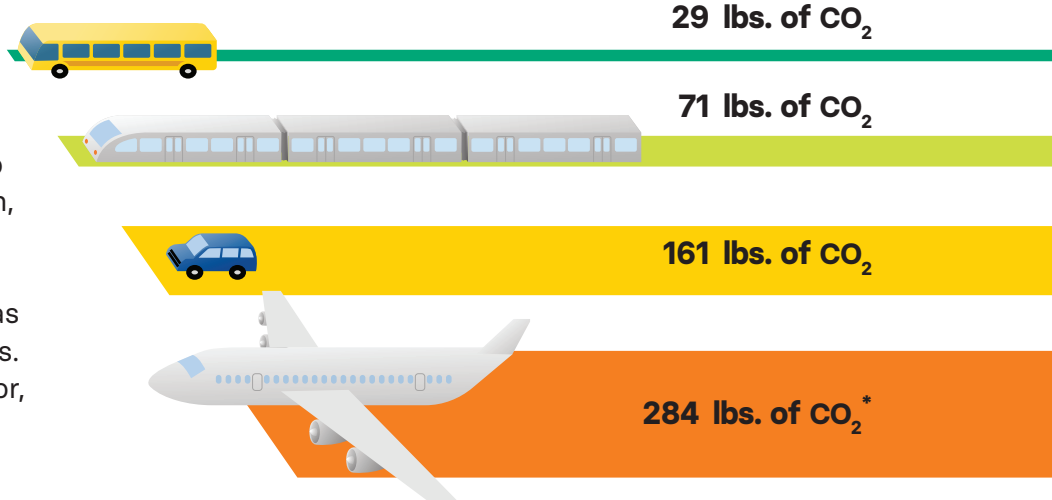
Building on a system developed by the UN's aviation agency, SABA will trace fuels from production to touchdown, accounting for all life-cycle emissions. Airlines, companies and, eventually, individual passengers will be able to track how much climate pollution is associated with their flights and how much has been reduced by using sustainable aviation fuel. Coupled with well-designed tax credits, revised fuel standards and funding for infrastructure, the efforts will help companies and airlines achieve their climate commitments and contribute to decarbonizing air travel.

"By using all the tools in the box, we can help scale up the use of sustainable aviation fuel," says Kizzier. "This will play a central role in reducing the climate impact of flying."

Tom Clynes

Plane, train or automobile?

None of the above. If you need to get from New York City to Boston, the bus is most sustainable way to go. Flying between these two cities emits more than 10 times as much climate pollution as the bus. Jet engines also expel water vapor, creating contrails that trap more heat in the atmosphere.



Source: Wanderu

*Includes radiative forcing, a measure of the heating effect caused by emissions in the atmosphere.

REID R. FRAZIER/STATEIMPACT PENNSYLVANIA

Cleaner air for Pennsylvanians

One of the nation's biggest power producers and worst polluters, Pennsylvania is about to become the first major fossil fuel state to put a price on carbon.

By Joanna Foster

BROOKE PETRY HASN'T OWNED A car in 20 years and loves it. It's one of her favorite things about living in Philadelphia — she can walk everywhere she needs to go. Unless of course the pollen counts are high or there's a ground-level ozone warning in effect. Then Petry has to start making decisions most people don't have to think about.

"I check my phone for the latest air quality alert, count the blocks to the store, scan my list to see if there's anything heavy on it I'd have to carry home and then do this crazy calculus to figure out if it's safe for me to get groceries for dinner," says Petry, a field organizer for EDF affiliate Moms Clean Air Force.

Petry has to think about these things, because like more than 26 million other Americans, she has asthma. Last September, it got so bad she ended up in the emergency room.

Petry's 12-year-old daughter, Eleanor, has asthma, too. She was diagnosed when she was just 18 months old. Petry knew the signs all too well — the wheezing, the gasping, the way it took Eleanor weeks to get over a mild cold.

Eleanor (12) and Brooke Petry.

"Even after living with this my whole life, seeing my daughter struggle to breathe was a whole new level of anxiety," says Petry. "When your kid comes home from school and tells you she was afraid to run and play with her friends at recess because it might trigger a flare, that's when you know that something is deeply messed up."

Eleanor is not alone. Twenty-one percent of children in Philadelphia have asthma — more than twice the national average. That's no surprise: Pennsylvania

THE WILSON LEGACY

This feature honors the memory of Robert W. Wilson, a longtime EDF supporter and champion of harnessing market forces to drive environmental progress. See edf.org/wilson

has some of the worst air quality in the country, and more premature deaths per capita from air pollution than any other state. It's no coincidence that Pennsylvania is also the nation's third-largest producer of electricity, and the majority of it comes from burning coal and natural gas. This spews more than 73 million tons of climate-warming gases into the air each year, together with toxic mercury and other heavy metals, as well as the soot, sulfur dioxide and nitrogen oxides that contribute to the formation of the smog that make it hard for Petry and her daughter to breathe.

"We will never make meaningful progress in cleaning up our air until we clean up our power sector," says Petry.

The good news is that Petry's wish may soon come true. After a three-year battle in which EDF played a key role, Pennsylvania is poised to link with a major climate initiative, the Regional Greenhouse Gas Initiative, or RGGI, that will cut carbon dioxide emissions from the power sector and reduce the state's dependence on dirty fossil fuels.

RGGI cuts carbon dioxide emissions by placing a declining cap on the amount that power plants are allowed to emit. It also makes the power plants pay for each ton of CO_2 they do release into the atmosphere. In addition to creating an enforceable limit on pollution, this makes the electricity from dirty power plants less competitive than cleaner sources, such as wind and solar.

THE BASICS: REGIONAL GREENHOUSE GAS INITIATIVE

What is RGGI? It's pronounced "Reggie" and it stands for the Regional Greenhouse Gas Initiative. It's a cooperative, market-based effort to reduce emissions from the power sector.

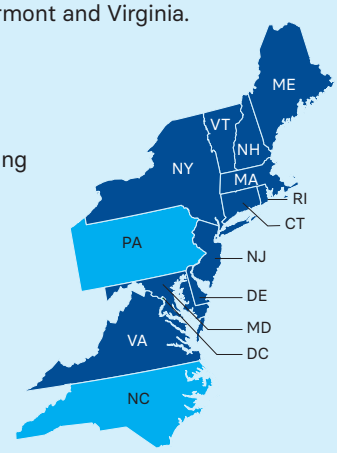
Sounds complicated. All you really need to know is that every year, the amount of pollution that power plants can emit is reduced. And within that annual limit, the more an individual power plant pollutes the climate, the more it has to pay.

What's next for RGGI?
With Pennsylvania almost across the finish line, we're turning our focus to North Carolina, home to Duke Energy, as it begins the process of joining RGGI too.

Who's in? Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont and Virginia.

11
participating states

2
in the process of joining



Since its launch in 2009, RGGI states, whose members include 11 Northeastern and mid-Atlantic states, have slashed carbon pollution from the power sector by more than 50% — twice as fast as the nation as a whole — and netted more than $4 billion in proceeds to invest in state programs.

After Pennsylvania joins RGGI, its carbon pollution will be reduced by some 188 million tons over the next 10 years — equal to taking four million cars off the road. Over the same period, the state's Department of Environmental Protection estimates that improvements in air quality will lead to 30,000 fewer hospital visits, 639 fewer premature deaths from respiratory disease and more than 45,000 fewer childhood asthma attacks.

"Cleaning up the power sector is really the linchpin to meeting the nation's climate goals over the next decade," says Pam Kiely, EDF's associate vice president for U.S. climate, whose team pushed hard to get Pennsylvania Gov. Tom Wolf, a Democrat, to join RGGI. "Nationwide, we have to secure at least an 80% reduction in power plant pollution by 2030 to have


GETTY

RGGI: It's good for kids, says study

A study by researchers from the Columbia University Mailman School of Public Health found that the Regional Greenhouse Gas Initiative, a multistate agreement to slash emissions from the power sector across Northeastern and mid-Atlantic states, has substantially improved children's health. The study looked at nine states participating in RGGI from 2009-2014 and found that the initiative had avoided an estimated 537 cases of childhood asthma, 112 preterm births, 98 cases of autism spectrum disorder and 56 cases of term low birth weight. The health cost savings totaled $350 million over the five-year study period. The results come from a reduction in the amount of fine particle pollution, commonly known as soot, in the air. The combustion of fossil fuels is a major source of this type of pollution. When inhaled, these tiny, airborne particles can lodge in the lungs and enter the bloodstream causing multiple health complications, particularly in children.

"After more than 20 years of studying the devastating health impacts to children of exposure to toxic air pollution from the burning of fossil fuels, I'm thrilled to be able to at last shed light on some good news," says Dr. Frederica Perera, Director of the Columbia Center for Children's Environmental Health. "Cleaning up our air can make a real, measurable and immediate positive impact. This research should give the public hope and encourage policymakers to take climate action."

a fighting chance to deliver on the United States' commitment to cut pollution economy-wide 50-52% by 2030."

The governor hopes to direct proceeds from RGGI — projected to be potentially hundreds of millions of dollars annually — to help communities affected by the changes happening in the energy sector and to clean up air pollution in the hardest hit areas. Gov. Wolf also plans to use RGGI revenue to build cleaner, more efficient energy, industrial and commercial sectors across Pennsylvania.

New air quality monitors will help the EPA track and enforce limits on pollution.

EPA.GOV

Despite the fact that 79% of Pennsylvanians — including 66% of Republicans — support limiting carbon pollution from power plants, getting RGGI across the finish line in Pennsylvania has been an uphill battle, with the state's Republican-controlled legislature attempting to block the process at every opportunity.

After the legislature failed to enact measures to address critical climate and energy policy issues, Gov. Wolf announced in 2019 that he would proceed by executive action.

"Governors don't have to wait for legislatures to act," says Kiely. "And they can't hide behind the recalcitrance and inaction of their legislatures, because they have powerful tools in their regulatory toolboxes to go after pollution right now. Gov. Wolf is showing just how effective executive action can be."

EDF helped devise the technical and legal case for the governor to take action under the state's existing clean air laws. We also helped build the public awareness of, and support for, RGGI that empowered the governor as he fought back against the program's determined opponents.

"The coal and oil and gas industries are powerful forces in Pennsylvania politics," says Mandy Warner, EDF's climate and clean air policy director. So are the unions in those industries, where workers have been told that RGGI will be the end of coal and the reliable jobs it supports in Pennsylvania.

But the reality, according to Warner, is that 42 coal-fired units in Pennsylvania have been retired since 2009 and most of the state's six remaining plants are already scheduled to be retired or converted to natural gas.

40,000

Moms Clean Air Force, EDF and Clean Power PA Coalition partners generated nearly 40,000 comments and testimonies in support of RGGI.

95%

of the 452 people who testified at the 10 public hearings spoke in support of Pennsylvania joining RGGI.

"These workers are facing a tough transition whether or not RGGI comes into effect," Warner says. "The difference is that with RGGI, you will have hundreds of millions of dollars to invest in those communities. Over the past decade, we've seen coal plant after coal plant retire in Pennsylvania. In some cases, they've gotten little to no warning from the plant operators, and they've gotten virtually no support at all from the state legislature."

If all goes according to plan, Pennsylvania will officially join RGGI in 2022. It will be a momentous day.

"Pennsylvania powers much of the New England and mid-Atlantic region," says Warner. "What happens in this state matters not just in terms of whether it can meet its own climate goals, but whether the region and even the nation can meet theirs."

Petry, who as part of Moms Clean Air Force, worked hard for this day to come, is relieved the finish line is finally in sight.

"Like all parents, I want to leave something better for my kid," she says.

UNSPLASH.COM

Raising all boats

Women are underrepresented in fisheries governance around the globe. In pursuit of more sustainable oceans, EDF is helping right the balance.

YANETT CASTRO'S GRANDMOTHER spent her life harvesting clams in the coastal lagoons of Sinaloa, Mexico. It was backbreaking work. Yet when she reached old age, she was as poor as when she'd set out.

Mexico fisher Yanett Castro.

CTTOBIN.COM

"She had no healthcare, no pension, no money for medication," says Castro, herself a Sinaloa fisher. "I don't want that. I want a dignified old age."

It's estimated that women make up 40% of the workforce in the world's small-scale fisheries. Yet they often have little say in how those fisheries are run. This limits their control over their own futures — and the sustainability of their fisheries. In Sinaloa, for example, only holders of fishing permits may participate in local governance, and permits are historically only issued to men.

The impacts of climate change are making the lack of women in decision-making roles an even more urgent problem, says Ana Suárez, a specialist in community engagement and equity at EDF. "As we respond to changing habitats, dwindling fish populations and more extreme weather, it is more important than ever that the solutions we propose work for, and include the perspectives of, everyone," she says. That means not only fishers, but those who work in processing plants, fix nets, sell fish at markets, feed fish to their families — all roles in which women predominate.

It is their involvement all the way from the ocean to the dinner table that makes women's contributions so valuable, says Alexis Rife, who leads EDF's engagement with the Small-Scale Fisheries Hub, an online forum for artisanal fishers across the world to discuss issues and share solutions related to sustainability. A lot of the site's 20,000 users are women. "Women tend to be strategic, long-term thinkers," Rife says. "And because they work across the whole supply chain, they see how the entire system works — and where it breaks down."

When women are empowered to take greater control, there are multiple benefits.

In Lampung province, Indonesia, a project to address sustainability in the blue swimming crab fishery found that a lack of financial planning skills made it harder for families to weather the times when stocks were low. As a result of a financial literacy workshop run by EDF and local partners, local women not only learned to manage the family income from fishing — but also to start enterprises of their own. Meanwhile, in Chile, an EDF project to increase grassroots engagement in fisheries management resulted in a woman-led group drafting a policy that is likely to enshrine ocean sustainability in Chile's constitution for the first time.

In some parts of the world, women are gaining roles higher up in fisheries management, too. In Chile, for example, where climate change threatens the lives and livelihoods of the 200,000 people who rely on fish for income and food, a woman, Alicia Gallardo Lagno, is running the country's fisheries for the first time.

These are hopeful signs, but there's more work to be done.

"There's a lot we don't know about the role and impact of women in global fisheries," says Rife, adding that the hub is one place to learn more. "With better data and by involving women, we can design more equitable, durable solutions to the threats our oceans face."

As for Castro, after participating in a sustainability workshop run by EDF, she formed her region's first-ever women's fishing cooperative, Almejeras de Santa Cruz. (Almejeras is a contraction of the Spanish words for clams and women — "almejas" and "mujeres.") The co-op enabled its members, after a long struggle with officials, to get a fishing permit and a seat on the regional fisheries council. It also inspired women in two neighboring communities to form co-ops of their own.

"We couldn't be a single cooperative because we belong to different communities," says Castro. "But for me we are all Almejeras. Every step we take, we take together."

Tasha Kosviner

INSIDE Solutions

LIVE WEB EVENT

Small boats, big impact

Join EDF experts and Mexico fisherwomen Yanett Castro and Miriam Perez for a deeper dive into the outsized importance of small-scale fishers in maintaining healthy oceans, building community resilience and sustaining the global supply of food.

March 9, 2022 | 4-5pm ET / 1-2pm PT
Sign up at edf.org/InsideSolutions

How to fight climate misinformation

When a friend or loved one spreads fake news, what's the most productive way to respond? EDF's Misinformation Brigade has answers.

If we've learned anything from recent years, it's that false information often spreads more quickly than the truth. This has distorted how many people view critical issues like climate change, making it harder to marshal the will and resources to fight it.

Changing minds is difficult work — we all tend to fend off ideas that threaten our beliefs. But, in the case of climate change, it's more important than ever to try to help individuals understand how it threatens people and the planet.

Unfortunately, almost two-thirds of Americans say they rarely or never discuss global warming with family and friends. "Many of us don't know what to do when someone we care about goes down a misinformation rabbit hole; we're reluctant to start a confrontation by calling them out," says Lauren Guite of EDF. Guite manages the Misinformation Brigade, a group of activists helping EDF combat climate misinformation.

The good news is that this sort of engagement, handled tactfully and patiently, doesn't have to be divisive. It can even be a way to build a stronger connection with someone. Here are some tips on how to speak across the climate divide:

Pick your battles

People are more likely to listen to someone they know and trust, so focus on friends and family, not strangers on the internet. And since no one likes to feel publicly pressured, be sure to raise the issue in private.

Ease in with empathy

When someone shares a piece of fake news, they're usually influenced by confirmation bias. That is, the content supports their worldview in some way. So ask questions about how they feel about the "news" they're sharing, and acknowledge those feelings. When people feel listened to, they're more willing to listen.

Keep it positive

While misinformation is defined as inaccurate or misleading information, disinformation is deliberately deceptive. Those who spread it employ emotion — usually anger — to appeal to people who may already be feeling afraid or powerless. That's one reason falsehoods thrive during pandemics and periods of social unrest. Recognize this in your conversations, showing kindness and tolerance instead of anger and impatience.

Find common ground

You're unlikely to get far with most people by declaring: "What you believe is wrong." Instead, start with shared values. "Try helping people envision a safe and secure future where we are all thriving," says Guite. "If someone says, 'Capping CO_2 will be bad for the economy,' help them imagine instead a future where we produce our own energy, where kids have clean water and air, where we can still enjoy nature."

Finally, the facts

Before you start questioning someone's facts, acknowledge that you too are being bombarded by fake news and that, like the person you're talking to, you're always looking for trustworthy sources of information. And make sure your own facts are solid and up to date. Consult EDF Action's website to find links and tools to verify content. Lead Stories, whose founders include an independent and a registered Republican, might be more trustworthy to conservatives.

Keep the conversation going

Changing someone's entrenched beliefs takes time and trust, so focus on keeping lines of communication open. And if the conversations start getting heated, try making them shorter but more frequent. Given time, you may be able to change a mind, and start changing the world.

Tom Clynes

GETTY

RESOURCES

Want to help us protect people from disinformation? Check out our guide to identifying it and combating its spread.
edf.org/how-we-can-fight-climate-misinformation

Join the Misinformation Brigade to receive notifications about dangerous misinformation and what you can do to help stop its spread.
edf.org/brigade

Check out the fact-checking site, Lead Stories, at **leadstories.com**

If you see something particularly harmful on social media, report it to **lguite@edfaction.org** and we'll alert our contacts at the social media companies to address it.

Zoe Tribley, hiking the Pacific Crest Trail.

The longest journey

ZOE TRIBLEY, A 24-YEAR-OLD graduate student from Tallahassee, Florida, had never been on a hike that took more than two days or covered more than a few miles. But then she saw *Wild*, the movie adaptation of Cheryl Strayed's bestselling memoir of the same name, and was inspired to walk a 1,700-mile section of the 2,650-mile Pacific Crest Trail, running from southern California to northern Oregon.

Tribley's goal — beyond testing herself to the limit — was to raise $1,000 for EDF through Facebook posts written along the trail. "I wanted the money to go to an environmental group that was making an impact doing the really important work," she says.

The journey took four months, from May to September, and climate change, EDF's overarching priority, was with Tribley much of the way.

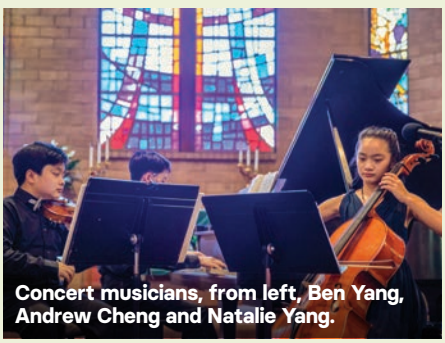
"A lot of my hike was disrupted by record heat waves in Southern California and enormous fires in Northern California and Oregon," she says. "I saw pillars of smoke right in front of me and would wake up the next day with ash raining down on my tent."

Tribley reached her $1,000 goal just as she completed her trek, persevering through hailstorms, elevation sickness and sheer exhaustion. "But I also swam in blue lakes of snow melt," she says, "and witnessed a blazing scarlet sunset, the brilliance of the Milky Way and a sunrise with a rainbow in a single night. Everyday, I saw something beautiful and worth defending."

Music to save the world

JINYE "RAINCAT" WANG HAS LONG been a pillar of the Bay Area classical music community. A conservatory-trained concert pianist, Wang has taught piano to generations of young people at her Raincat Studio in Saratoga, a small town in Silicon Valley.

For two decades, she has also encouraged her students to "take their gift and turn it into something good," by organizing, publicizing and performing in benefit concerts for causes they themselves choose. Past concerts have raised money for victims of Hurricane Katrina and children in Iraq's poorest province.



Concert musicians, from left, Ben Yang, Andrew Cheng and Natalie Yang.

KIKEARNAL.COM

This summer, Wang's students voted to fight climate change by holding a concert to benefit EDF, which works in the Bay Area to monitor dangerous air pollution in communities and reduce greenhouse gas emissions.

"We looked at a lot of organizations," said Ashley Huang, 13, one of the performers. "We were looking for one that was international, respected science and also worked in the Bay Area. EDF was the perfect fit."

The two-hour concert, titled "Trebled Earth," featured 22 musicians aged eight to 16 and raised $10,000. Some 100 people attended live, while many more live streamed the event.

Teacher extraordinaire: Jinye Wang.

KIKEARNAL.COM

For Wang, whose students know her as Raincat, the rewards of these concerts go to the heart of her calling as a teacher and musician. "The kids bring their whole heart to the music," she says, "and when they play it touches everyone."

"The future never just happened. It was created."

— Mae Jemison, Engineer and former NASA astronaut

GETTY