

sea change

**How EDF is helping fishermen
around the world return the
oceans to health**

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air battle we
have to win

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Will we learn
the lesson?

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a forgotten
community

Surviving drought

In one of the longest migrations of any American raptor, Swainson's hawks fly from wintering grounds in Argentina to California's Central Valley. When they arrive they find 90% of their nesting habitat gone. EDF is working with landowners to plant riverside trees and switch to crops that are favorable to hawks. It's one way to help wildlife adapt to a hotter, drier world.



The power of persistence



CHARLIE WURSTER IS ONE OF MY heroes. Nearly half a century ago, he and a small band of scientists and attorneys fought a six-year battle to ban the pesticide DDT in the United States. Their victory helped save America's great birds of prey, including the osprey and bald eagle, whose numbers had plummeted. In the process, Charlie and his colleagues founded EDF and helped launch the modern environmental movement (see p. 15).

For an avid rower like me, seeing an osprey hover over its prey, tail feathers spread wide, and then dive for fish can still take my breath away—and reminds me of the achievement of EDF's founders. Charlie Wurster and co-founder Art Cooley have now served on EDF's board for more than 47 years.

Saving birds of prey and ourselves from DDT required persistence, something we need now more than ever. EDF's oceans staff have been persistent in their efforts to stem overfishing and return the oceans to abundance. New approaches like catch shares and other methods of sustainable management, long championed by EDF, give fishermen an economic stake in protecting their fisheries.

These new approaches are working. Red snapper populations in the Gulf of Mexico have more than tripled since we worked with fishermen to create catch shares there. With a similar program off the West Coast, groundfish stocks have grown, revenue is up for fishermen, and the amount of discarded fish has dropped 80%. Catch shares now govern nearly two-thirds of the catch in U.S. federal waters.

The latest good news comes from Belize. Our staff and local partners created a pilot catch share program so successful it's being expanded nationwide (see cover story, p. 8).

We are also partnering with Rare, a global leader in community-led conservation, and with the University of California, Santa Barbara, to adapt this approach for the Philippines, Indonesia, Brazil and Mozambique.

Just as Charlie Wurster and his colleagues helped save the osprey and bald eagle decades ago, EDF today remains committed to taking on, and winning, the toughest environmental battles—from climate change to conserving water for people, agriculture and wildlife in the drought-stricken West (see p. 16).

Victory won't happen overnight, but with persistence, and with the help of our allies and you, our members, I'm confident we will succeed.

Treed Krupp
EDF President



Finding the ways that work

Environmental Defense Fund'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.

Our work is made possible by the support of our members.



On the cover: Around the world, coastal communities depend on nearshore fisheries and coral reefs for food, but today both are in significant decline due to overfishing. New

research by EDF and partners suggests that fisheries could recover faster than previously estimated.

Senior writer Rod Griffin reports on recent successes in the developing world, and how they could be a model for putting coastal fisheries on a sustainable path.

Cover photograph: Paul Lemke

Solutions

Editor Peter Klebnikov
Art Director Janice Caswell

Environmental Defense Fund
257 Park Ave. South
New York, NY 10010

Main number 212-505-2100
Membership questions 800-684-3322
or members@edf.org

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Send feedback to address above or email editor@edf.org

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FIELD NOTES



ISTOCKPHOTO

Plugging methane, a powerful greenhouse gas, is largely a plumbing problem that can be fixed cost-effectively.

Cutting methane: one key to an effective climate agreement

When countries meet in Paris for UN climate talks in December, one topic that should be discussed is natural gas emissions from oil and gas operations.

An EDF-commissioned analysis shows that about 3.5 trillion cubic feet of methane, the main component of natural gas, escaped globally in 2012 from oil and gas activities. When released into the atmosphere, this methane has the same short-term climate impact as the carbon pollution from 40% of all coal

burned. Methane accounts for one-quarter of the warming we're now experiencing. Unless countries curb methane pollution, emissions will increase nearly 25% by 2030.

"If we cut today's oil and gas methane pollution in half globally, the effect over the next 20 years would be equivalent to shutting down 1,000 coal-fired power plants," says Drew Nelson, manager of EDF's natural gas program. "This is a low-cost opportunity climate negotiators can't afford to miss."

EDF trains pollution fighters in China

EDF's Beijing office and allies helped win stronger penalties against polluters. EDF-trained government enforcement officers, below, inspect wastewater treatment equipment at a corn-processing company in Jilin province.



POWER SURGE: CLEAN ENERGY

“2015 is shaping up to be the most carbon-efficient year ever for the U.S. power sector.”

—Gavin Purchas, EDF California clean energy director

SOURCE: BLOOMBERG NEW ENERGY FINANCE REPORT

Wyoming reins in air pollution



ISTOCKPHOTO

Wyoming is one of America's top natural gas producers. It's also a leader in strong regulations controlling harmful impacts of oil and gas drilling.

With help from EDF, regulators approved a rule in May that will reduce air pollution in the Upper Green River Basin, a rural region in western Wyoming that's a center of energy production. Unhealthy smog there at times has rivaled pollution levels in Los Angeles, and schools occasionally need to cancel outdoor recess. EDF hammered out a solution that won broad support. The new pollution controls apply to both new and old equipment. We're now pressing to expand the rules statewide.

Going hungry

Melting summer sea ice in the Arctic is making it harder for polar bears to hunt seals, their favorite prey. Some bears are eating land-based foods like berries and eggs, but these are no substitute for calorie-dense seals. Many bears are suffering from malnutrition. To save the polar bear, the world must cut CO₂ emissions.



SHUTTERSTOCK



GETTY

Taking the cleaner route.

EDF prevails in two court battles

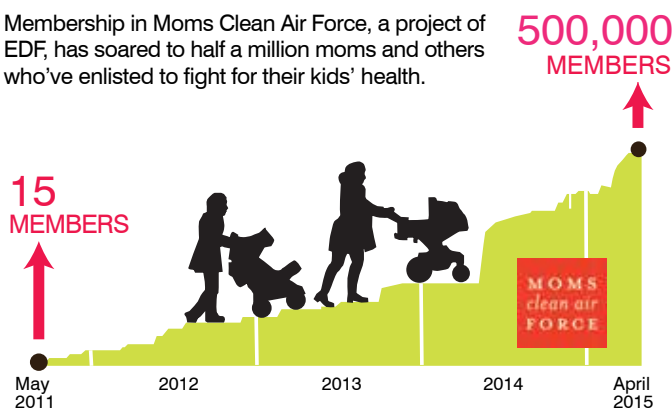
Our legal team helped score two wins in federal court recently. In one case, an appeals court panel upheld the first-ever national fuel efficiency standards for large trucks and buses. The court unanimously dismissed legal challenges to the EPA rules by industry groups and other challengers. The standards—strongly supported by manufacturers of truck and engine clean technologies—will reduce harmful pollution and lower truckers' fuel costs.

Separately, a federal appeals court refused to reconsider a case brought by Texas and some power companies that had fought EPA efforts to reduce climate pollution from large new or upgraded industrial facilities like oil refineries and power plants.

EDF was a party to both cases. "The court rulings, like so many others, underscore that EPA's clean air measures are based on rigorous science and are legally sound," says our attorney Peter Zalzal.

A FORCE TO BE RECKONED WITH

Membership in Moms Clean Air Force, a project of EDF, has soared to half a million moms and others who've enlisted to fight for their kids' health.



»»»JOIN »»» Become a part of Moms Clean Air Force at momscleanairforce.org.



A wee dram for the environment

Edinburgh-based Celtic Renewables Ltd. has found a way to convert Scotch whiskey waste products into a biofuel that can replace gasoline.

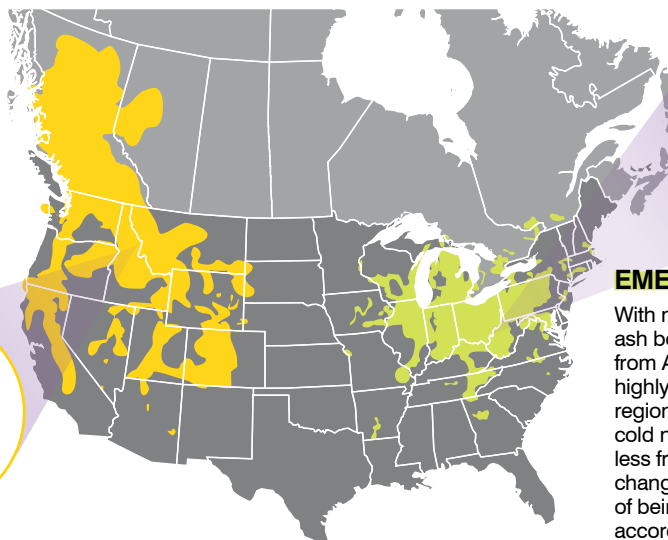
ILLUSTRATION BY LELAND GOODMAN

Climate change proves deadly for U.S. trees

Since the 1990s, vast tracts of North American forests have been devastated by tree-killing beetles. In the West, pine trees covering 60 million acres from New Mexico to British Columbia have been killed off by native mountain pine beetles. In the East the highly destructive emerald ash borer, first seen in 2002, is now active in 20 U.S. states.

MOUNTAIN PINE BEETLE

Normally, pine trees put up a fight by releasing chemicals in their bark to deter the beetles. But scientists say they have been weakened by the region's persistent drought. Also, hard frosts, which kill off mountain pine beetle larvae, are coming later in some areas thanks to climate change.



EMERALD ASH BORER

With no defense against the ash borer—an exotic species from Asia—the ash trees are highly vulnerable. In fact, in regions where larvae-killing cold nights are becoming less frequent due to climate change, they are in danger of being wiped out entirely, according to scientists.

SOURCES: NATIONAL GEOGRAPHIC; SCIENTIFIC AMERICAN; USDA

Dirty energy, desperate tactics

By Charles Miller

The climate naysayers launch an all-out attempt to throttle renewable energy.

OPPONENTS DID NOT WAIT LONG to attack EPA's Clean Power Plan, the nation's first-ever rules limiting climate pollution from existing electric generating plants. In fact, the do-nothing caucus didn't even wait until the rules were final. On April 16, the DC Circuit Court of Appeals heard a challenge brought by West Virginia, several coal companies and their allies who claim the rules are unconstitutional.

"The petitioners' extensive legal attacks are unprecedented in scale," says EDF general counsel Vickie Patton. "They allege the final rules are unconstitutional without even having seen them."

Although this challenge was rejected by the court in June, it offers a foretaste of an intense upcoming struggle over the

most important U.S. climate action so far. America's 518 coal-fired power plants are the largest source of the nation's carbon dioxide (CO₂) pollution, and the Clean Power Plan will cut those emissions nearly a third below 2005 levels by 2030. That's a critical step toward reducing the risk of climate change. The final rules are anticipated this summer.

"We expect to see a relentless assault on the Clean Power Plan in the courts, in the states and in Congress," says Patton. "But we have the law and public opinion on our side."

States are on board

Under the Clean Power Plan, each state will have broad flexibility in preparing its own strategy to meet its pollution-reduction targets. States can expand energy efficiency, fast-track renewable energy, add computer intelligence to the electric grid, and shutter old and polluting coal plants.

Most states already have started work

on their individual plans, even heavily coal-reliant Kentucky. But behind the scenes, opponents have been working overtime to stymie those efforts. In several states, EDF has helped blocked legislation inspired by the American Legislative Exchange Council (ALEC), which has brought together private interests with legislators opposing EPA's plan.

In Colorado, EDF and local partners such as Conservation Colorado and Western Resource Advocates helped defeat three bills that would have erected barriers to the Clean Power Plan. We've worked closely through allies to help defeat a similar proposal in Minnesota, and we've opposed other damaging bills in Montana and Nevada.

EDF's Raleigh, NC, office has been working hard to stop an ALEC bill that seeks to overturn a requirement that the state generate 12.5% of its energy with renewable power. Solar energy is important in North Carolina, and the ALEC bill could devastate the industry.

Fortunately, most states want to transition to cleaner energy for health, jobs and cost savings. Colorado recently affirmed its commitment to move forward. In states still on the fence, we are prodding governors and policymakers to lead.

On Capitol Hill

At the national level, the backlash against the Clean Power Plan has been furious. Senate Majority Leader Mitch McConnell (R-KY) called the plan "a dagger in the heart ... of representative democracy" and urged state leaders to ignore it. Rep.



Anarchy, McConnell-style

Senate Majority Leader Mitch McConnell has been unwavering in his defense of coal power. But this time, he may have outdone himself. McConnell is urging governors to ignore EPA's recommendation that they prepare individual clean power plans. This tactic will give opponents more time to scuttle the clean power rules. Says McConnell, "We're devising strategies now to do just that."

Ed Whitfield (R-KY) introduced a bill encouraging states to do the same, a transparent effort to kill the plan.

“Whitfield’s bill is a disgrace,” said Elizabeth Thompson, president of EDF Action, our political action partner. “It encourages states to ignore the law of the land and would recklessly raise the threat level for dangerous climate change.”

Other strategies Congressional opponents are pursuing include:

- **Using the Congressional Review Act**, a law that lets Congress toss out any rule a two-thirds majority dislikes.
- **Blocking the funding EPA needs** to carry out the plan. By attaching riders to “must-pass” legislation, opponents hope to force President Obama to sign measures he would normally veto.
- **Sowing doubt internationally** about America’s commitment to climate action. Such doubt could dampen support for an international climate agreement when the world’s nations convene in Paris this December.
- **Resorting to scare tactics.** According to Sen. James Inhofe (R-KY), the Senate’s arch climate denier, “At least 43 states will face double-digit electricity price increases” under the Clean Power Plan. Such phony claims are sharply at odds with EPA figures, which project that electric bills will fall.

“Over-the-top projections from opponents of environmental progress are de

rigueur,” says Cheryl Roberto, EDF associate vice president for clean energy. “In the 25 years since the passage of the 1990 Clean Air Act, the cost of electricity has gone down in most states – not up.”

One potent argument against the opposition: the millions of new jobs the Clean Power Plan is expected to create in solar and wind power, energy efficiency, and other advances. EDF analysis finds that in energy efficiency alone, the plan could mean 800,000 new jobs for the American economy by 2020.

Opponents of the Clean Power Plan are increasingly isolated when they deny the scientific reality of man-made climate change and defend outdated and unhealthy methods of generating power. The public is demanding climate action, and although opponents including the Koch brothers have amassed a huge war chest, EDF is ready for the fight, as are allies ranging from leading power companies to the American Lung Association.

We are confident we will win.

Tell YOUR member of Congress: Lay off the Clean Power Plan!

EDF members submitted more than 946,000 comments to EPA in support of the Clean Power Plan. We thank you for helping keep EPA’s rules strong.

>>>TAKE ACTION >>> New attacks are expected! Contact your senators and representatives. Urge them to support the Clean Power Plan, edf.org/supportcleanpower.



Change in the breeze: The cost of wind energy dropped over 50% between 2009 and 2013.

MEMBER SPOTLIGHT

Defending the future, enlisting the young



Taia Ergueta and Gary Kah.

Taia Ergueta was raised by a single mother who immigrated to America from Bolivia with two small children and little money. Ergueta knows about overcoming the odds.

So when she talks about how to overcome the powerful opposition to climate action, it pays to listen: “It’s the passion of millennials and their sense of power that will create the necessary change,” says Ergueta, a business consultant in the Bay Area.

Like many EDF members, Ergueta and husband Gary Kah are appalled by political leaders who block climate action and the economic, health and security benefits it will bring. Yet Ergueta is optimistic about the future. “Millennials’ unique combination of confidence and caring can create a big wave of environmental progress in my lifetime,” she says.

“I am really hopeful EDF’s campaign to get young people to vote in 2016 will inspire them to get involved and give them tools for taking action on climate,” she says. “That is well worth funding.” Ergueta and Kah have supported EDF for more than 20 years and have left a bequest to EDF in their will.

To heal the ocean

By Rod Griffin



When people think of overfishing, they usually imagine trawlers on the open seas. But nearly half the world's wild seafood is caught by independent fishermen operating boats within a few miles of shore. Many of these small coastal fisheries are poorly managed and in trouble, putting a food source for millions at risk. Working with local partners, EDF is using science to help revive the global blue economy.

CARLOS “CASH” RAMIREZ WAS industrious, even as a kid. The 38-year-old Belizean fisherman got his nickname from his uncle when he was ten, because he always knew where the fish were and thus had money in his pocket. The name stuck.

Growing up on Head Caye, two miles off the coast in what is now the Port Honduras Marine Reserve, Cash and his brothers would paddle wooden dugout canoes across the water and then walk six miles to school in Punta Negra, a fishing community that still lacks electricity or roads. Like everyone else, they fished in their free time.

The Ramirez family's connection to the sea runs deep. Most still live on the cayes. Cash's 63-year-old mother and matriarch of the family, Anna (known to most as Mrs. Anna out of respect), can often be found fishing with a hand-line from her panga. His brothers run the local fishing cooperative.

Since Mayan times, subsisting on this tranquil, sun-drenched coast has been as predictable as the ebb and flow of the tide. The Mesoamerican Reef—the largest barrier reef in the Western hemisphere—supports 500 species of fish, as well as troves of queen conch and lobster. The United Nations declared the reef a World Heritage Site in 1996 due to its rich biodiversity, including threatened sea turtles and manatees.

But overfishing, coastal development and agricultural runoff threaten the reef and the livelihoods of fishermen. With open access and no limits on the lobster catch—much of it destined for U.S. restaurants—the lobster population has plummeted. Many fishermen say they now work an entire season to catch the same amount of conch and lobster as they once caught in a week.

As fish stocks tanked, it became more challenging to make ends meet, even for Cash, who is married with four kids. He

took a job as a ranger, patrolling the borders of the reserve where he had once fished illegally. “It takes a pirate to catch a pirate,” he jokes. “I knew I had to do something to help stop the illegal fishing. The reef is our future.”

A new model for conservation

In 2009, EDF teamed up with the Wildlife Conservation Society and the Toledo Institute for Development and Environment (TIDE), a Belizean conservation group, to enlist fishermen, policy makers and managers of marine reserves to help preserve the reef. Dozens of workshops held over several years allowed Belizeans to voice their concerns about their coral reef.

As a result, the government authorized pilot catch share programs in the Port Honduras and Glover's Reef reserves in 2011. Under the programs, local fishermen have rights to fish in a designated area, called territorial user rights for fishing (TURFs). In exchange, they help monitor illegal fishing, a huge problem.

After just four years, fish populations are rebounding and illegal fishing reportedly has dropped 60%. That success ▶

THE ECONOMIC UPSIDE OF FISHING SUSTAINABLY

Preliminary results of research by EDF, the University of California at Santa Barbara and the University of Washington show that compared to status quo, sustainable fishing could result in:

112% more fish in the water

23% more seafood on the plate

315% increase in value

led the government of Belize to ask EDF's help rolling out the system nationwide. In May, the national cabinet approved the plan, which has the support of 12 of the nation's fishermen groups representing thousands of fishermen.

"Territorial user rights give fishermen an incentive to become better stewards," says Larry Epstein, EDF senior manager for Mesoamerica. Adjacent no-take zones enable fish to flourish and spill over into the designated fishing areas.

Local engagement is key

"The notion of TURFs was initially a tough sell with the independent-minded fishermen," Epstein adds. "But for those who participate, it reverses the 'take what you can now because it is all disappearing' mentality and replaces it with a sense of ownership and awareness of the economic importance of sustainability."

At the World Ocean Summit in Lisbon this June, more than 250 ocean experts and policy makers met to discuss the future of the global "blue economy." EDF scientists stressed the importance of wild fisheries for food security as well as economic potential. Globally, three billion people rely on seafood as an important source of protein, but many fisheries are poorly managed or have no rules at all.

The livelihoods of millions of fishermen are in jeopardy. Most live in small coastal communities with few options for employment. Many Somali pirates, for instance, were once fishermen who grew desperate as their nets emptied.

"The dominant narrative for the world's oceans is one of doom and gloom," says Dr. Douglas Rader, EDF's chief Oceans scientist. "There's this impression that by mid-century wild fisheries may be a thing of the past. That's



Globally, some 38 million fishermen depend on healthy

Ocean crusader: Melding science and policy

Dr. Jane Lubchenco, a marine ecologist and EDF Trustee, was recently appointed as the State Department's first U.S. Science Envoy for the Ocean. In an interview, the former head of NOAA describes why she was drawn to the oceans, and how we can save them.



JIM HARRISON

You grew up in Colorado, far from the ocean. What lured you to a career in marine biology?

I had always spent a lot of time outdoors and loved hiking, climbing and fishing, and being intrigued by nature. In college, I spent a summer at the Marine Biological Laboratory at Woods Hole, MA. I discovered a whole world that I didn't know existed. And I couldn't get enough of it.

Was there a wake-up call for you, when you realized the world's oceans are in trouble?

As an ecologist, studying data year after year, you observe patterns. Early in my career, I studied a spectacular coral reef in Jamaica. I went back 20 years later and could not believe how devastated the reef was. The combination of overfishing, poor land-based practices and hurricanes had completely transformed this colorful, highly diverse reef into a wasteland. I began to cry inside my scuba mask. That convinced me that oceans were changing more rapidly than people understood, and that we needed to find solutions.

What role should scientists play in shaping policy?

Having seen so many environmental changes under way I've come to believe that scientists have a much broader obligation to share



oceans for their livelihoods.

GETTY

something we must change.”

The good news is that rights-based management can help unleash the oceans’ natural resilience and achieve a dramatic recovery in fish populations. Progress in the United States, where EDF helped develop catch share programs in commercial fisheries, shows what’s possible. Today, nearly two-thirds of fish caught in U.S. waters are under catch shares. The National Oceanic and Atmospheric Administration (NOAA) recently announced that overfishing is at an all-time low. Revenues are up and dozens of species are on the path to recovery.

New research, conducted by EDF with economists at the University of California at Santa Barbara (UCSB) and fisheries experts at the University of Washington, shows the potential for the world’s fisheries to recover. Preliminary results of the study, presented in Lisbon, found that in

a majority of places sustainable fishing leads to more fish in the water, more food on the plate and better livelihoods for communities (see chart, p. 9). And recovery can happen rapidly—in a matter of years not decades.

EDF’s successes in Belize, Mexico and the United States demonstrate what’s possible elsewhere with the right set of policies and incentives. We’re focusing on a dozen governments that account for more than three-fifths of the global catch, including the European Union, where we helped reform the common fisheries policy committing Europe to end overfishing by 2020.

Fish Forever

To tackle the particular challenges of small coastal fisheries, EDF is collaborating with UCSB, which brings expertise in fisheries assessment and analysis, and ▶

what they know with the larger community. Many of the hang-ups that my generation of academic scientists had about engaging with society are non-existent for young scientists today. They are ready to get on with solving the world’s problems—and that passion, that energy, that devotion is really inspiring.

Give an example where scientists were able to convey to society a discovery and society acted on it?

When California required creation of marine protected areas off its coast, scientific information fed directly into the size and spacing guidelines of the protected areas. This also happened in the Great Barrier Reef and other threatened places. To me, those are examples of scientists joining with nonprofit groups, government and local communities to tackle something that would previously have been considered too tough.

What are the key components for success in managing fisheries?

Having a mandate to do something is a useful starting place, but in reality top-down approaches alone are insufficient. Having a combination of top-down mandate and bottom-up engagement of local communities and fishermen is truly important for durable outcomes. We certainly saw that

“Change is not for the timid, but it is possible, and absolutely worth the effort.”

with fisheries management in the United States. I think the success we had with ending overfishing and recovering depleted species is quite remarkable and gives me a lot of hope.

Overfishing and pollution have taken a toll on the world’s oceans. How resilient are they?

The oceans are resilient, but not infinitely resilient. We’ve seen with cod in New England how overfishing, possibly coupled with climate change, is having a huge impact. That may well be a system that was hammered so hard for so long that it may not be able to recover. It’s a cautionary tale. We need to implement more sustainable practices before it’s too late.

What role can wild fisheries play in global food security?

So many developing countries have deep-seated poverty. Having more fish in the ocean and controlling illegal fishing can help alleviate that poverty. One example of progress is Namibia. Previously, the government

had sold contracts to foreign fishing vessels. Now, it’s implementing a training program for Namibians who’ve never been fishing before but need jobs. The government created a rights-based catch share program that incentivized them to be good stewards. That fishery has had a remarkable turnaround. It still has some problems, but it’s in a much better place now.

As a renowned marine biologist and the first female NOAA administrator, you’ve been a pathbreaker. Do you see more women becoming involved in science?

I was exceptionally fortunate to have woman role models in my life. My mother and my grandmother were both physicians, very capable women who were adept at combining family and career. I see there are wonderful opportunities for both young women and young men today.

What influenced your decision to join the EDF Board of Trustees?

I was drawn to EDF because of its focus on solutions, on working collaboratively and basing everything on good science. I continue to be involved because I like EDF’s strategic and smart approach to taking on really big, really hard and really important issues—and delivering on them.

► Rare, a global leader in social marketing and community-led conservation. The partnership, called Fish Forever, has begun work in the near-shore fisheries of two leading fishing nations, the Philippines and Indonesia.

“In the ocean setting, it’s location-location, just like in real estate,” says Rader. “The region, known as the Coral Triangle, has high-end biodiversity for corals, mangroves, fisheries—everything.” Years of overfishing, however, have resulted in smaller fish and smaller catches, leading many local fishermen to resort to dangerous illegal techniques such as dynamite fishing, which kill indiscriminately.

The Philippines has a long history of no-take zones—the country has more than 1,000 marine reserves where fishing is prohibited—but enforcement is weak.

Working closely with local partners, we’re helping design four pilot projects, including a network of managed access areas off Tinambac, a municipality located on the island of Luzon. In June, we helped secure passage of an ordinance giving the green light for our managed access approach, a critical step toward implementation.

“Our focus is on community-based management,” says EDF’s Emilie Litsinger, who grew up in the Philippines and is now based there as our project manager. “We want to empower communities to take responsibility for conserving marine resources, taking into account their specific needs.” In Tinambac, for example, seaweed farming has become an



PACIFIC STOCK

EDF is working with fishermen to identify and protect coral reefs and other critical habitat.

important income source for the local population, so it is being incorporated into the project design.

Solutions toolkit

To help guide the process in the Philippines—and around the world—EDF’s Fishery Solutions Center, a leading resource for science-based innovation, has created a comprehensive toolkit, including software that helps scientists assess fish abundance.

“The starting point is local knowledge gained through years of fishing,” says Dr. Rod Fujita, director of research and development for EDF’s Oceans program. “This knowledge can be combined with data and analysis to support manage-

ment even when data are scarce.”

Back in Belize, the toolkit is being used to help design the country’s national, multi-species catch shares system, the first in the developing world. Things look good for the 2015 lobster season, which officially kicked off in June with a festival, including traditional Garifuna music, dancing and blessing of the commercial fleet. A votive candle was lit for each boat and a prayer offered for the safe return of fishermen.

For smaller operators like Cash Ramirez, who has returned to fishing full time, the ritual is simpler.

“You pray to the Most High—and go,” he says. “I’ve never been more optimistic about the future than I am today.”



Remember when
you first realized
we have to protect
our environment?
It still needs you.

Make a gift to EDF in your will or from your IRA.
Please contact Katherine Brown
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Toll-free: 877-677-7397
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Stores opt for safer ingredients in products

The United States urgently needs chemical reform. EDF is challenging corporate leaders to help put safer products on America's shelves.

MICHELLE HARVEY REMEMBERS clearly her first exchange with representatives of retail giant Walmart. "My very first conversation was about chemicals," recalls Harvey, EDF's supply chain director.

It was 2007, and EDF had just opened an office in Bentonville, AK, near Walmart's corporate headquarters. Our goal was to work with the retailer to reduce its environmental footprint.

Two years later, Walmart was using a software program EDF helped develop that assesses chemicals in formulated products. The results were disturbing: nearly 40% of Walmart's assessed products contained chemicals that may pose health risks. Walmart asked EDF to help create a policy for its suppliers to improve the safety of chemicals in products.

By 2013, Walmart had developed with EDF an industry-leading policy to phase out potentially harmful ingredients from tens of thousands of products—shampoos, body lotions, cosmetics and more—in its U.S. stores.

Research shows that babies in the womb typically carry dozens of toxic chemicals and pollutants in their bodies. Most chemicals, however, have never been tested for possible health impacts.

"Consumers are now demanding safer products," says Dr. Sarah Vogel, EDF Health program director.

There are three key elements to the Walmart policy announced in 2013: increased ingredient transparency; phasing out of priority chemicals of concern; and leadership in Walmart's generic or private label products by certifying them



ISTOCKPHOTO

A program that EDF helped develop revealed that nearly 40% of the assessed products on Walmart's shelves contained chemicals that may pose health risks.

through the EPA's Safer Choice Program.

"The transparency requirement went into effect in January," says Harvey. "Those who don't comply are threatening a very important business relationship."

"It is far wiser and less expensive to prevent exposure to unsafe chemicals and air pollution than to treat the serious health problems that they can cause," says Dr. Lynn Goldman, an EDF Trustee and Dean of the Milken Institute School of Public Health at George Washington University.

With Walmart's unparalleled purchasing power, its policy will drive change throughout the \$250 billion global personal care and household products industry. "When companies like this make a shift, it's huge," says Judi Shils, executive director of Teens Turning Green, a nonprofit that promotes environmentally conscious choices by young adults. "You're influencing Middle America."

We're seeing ripple effects already: Target and CVS have announced their own chemicals programs.

And with guidance from EDF, Walmart and

Target convened more than 75 beauty and personal care product companies and chemical makers at a sustainability summit to advance industry-wide action. EDF is on the steering committee in this effort and we're encouraged that many more personal care companies are now actively seeking to collaborate on sustainability rather than simply pay it lip service.

"These actions show that what's good for people and the environment is also good for business," says EDF VP of corporate partnerships Tom Murray.

EDF accepts no funding from Walmart or any other corporate partners, or from their corporate foundations. We do accept funding from private foundations and from individuals.



JOHN PARR

Big box, big influence.

Supreme Court to rule on mercury

MERCURY IS BAD NEWS. SPEWED from coal-fired power plants, it can contaminate fish that—if consumed in sufficient quantities—are particularly toxic to the neurological development of fetuses and young children. Up to 400,000 infants are born each year with high levels of mercury in their blood.

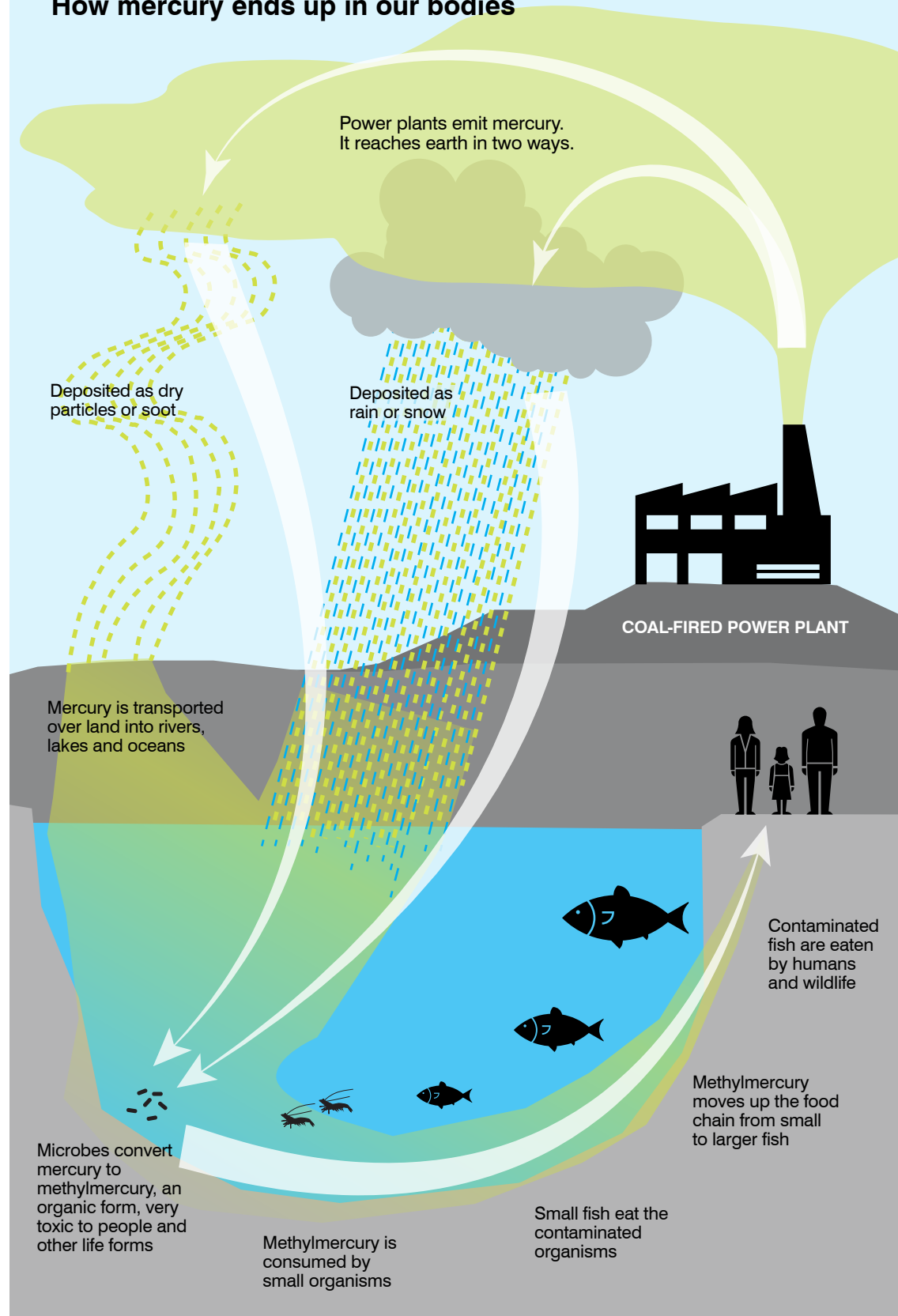
With its 2011 Mercury and Air Standards, EPA set out to cut emissions from power plants by 90% while also curbing other pollutants, including carcinogens such as chromium, arsenic and nickel. At the time, EDF president Fred Krupp called EPA's action "one of the most important public health measures in generations."

But some polluters didn't agree and filed suit. Last year, the U.S. Court of Appeals in Washington, DC, upheld the standards with minor adjustments. After the decision, two-thirds of U.S. power plants began taking steps to comply with EPA's 2015 deadline. But a number of opponents—including 21 states and the National Mining Association—appealed.

The stakes were high when the U.S. Supreme Court heard the appeal this spring. EDF was a party to the case, defending the standards alongside a broad coalition of states, cities, power companies and medical associations. A decision is expected imminently.

"It only takes a tiny amount of mercury to cause huge health problems," says EDF attorney Graham McCahan. "Americans are ready to have it gone."

FROM POWER PLANTS TO PEOPLE How mercury ends up in our bodies



They helped save the bald eagle



T. CHARLES ERICKSON

EDF founders: Art Cooley, Charlie Wurster and Dennis Puleston.

In his new book, an EDF founder reflects on the early days of a tiny organization dedicated to justice for wildlife.

TODAY, EDF IS AMONG THE world's most prominent environmental organizations, a global force in the fight to solve the toughest, most urgent environmental challenges.

But it didn't start out that way.

EDF was born on October 6, 1967, when ten people—including a cluster of scientists and an attorney—gathered in a conference room at Brookhaven National Laboratory on Eastern Long Island to sign the Certificate of

Incorporation of the Environmental Defense Fund.

Among the founders was Dr. Charles F. (Charlie) Wurster, who describes the scene in his new book, *DDT Wars: Rescuing our National Bird, Preventing Cancer, and Creating the Environmental Defense Fund* (Oxford University Press). The book is required reading for anyone wanting to understand how modern environmentalism took shape.

"We hadn't the remotest idea of where all this would lead," says Wurster, who at the time was an assistant professor of biological sciences at SUNY Stony Brook. He and cofounder Art Cooley now have served on EDF's board of trustees for 47 years.

"There were no offices, no staff, no money, no membership, no bylaws, not even a letterhead," Wurster writes of the earliest days. "But the new EDF had one asset—an idea—in its collective mind. EDF would marry science and law to defend the environment in the courts."

The fledgling organization was dedicated to banning U.S. use of DDT. The insecticide was causing populations of the great

raptors in the lower 48 states—including the osprey, American bald eagle and peregrine falcon—to collapse. It was even finding its way into breast milk.

The 1962 publication of Rachel Carson's *Silent Spring* created broad awareness of DDT's dangers, but when EDF's founders met a few years later, little had changed in pesticide policies.

"EDF was born of the frustrations of those ten people with the American system as it then existed for protecting environmental values," writes Wurster. "All were weary of writing letters to congressmen, only to receive reassuring form letters in reply."

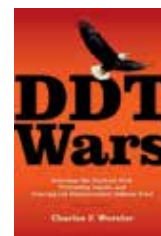
Above all, *DDT Wars* chronicles EDF's successful struggle to establish the right of ordinary citizens to sue their government to protect the environment. Winning this standing, in a 1970 decision by the DC Circuit Court of Appeals, created the basis for what is now known as environmental law.

It was a heady achievement for an organization with just three employees in an attic room above the Stony Brook, Long Island, post office, though Wurster is quick to credit "brilliant legal work" by the Center for Law and Social Policy.

The DC court's decision set the stage for the fledgling Environmental Protection Agency to ban DDT for most uses nationwide in 1972. That was a great victory for the five-year-old EDF, which was only beginning to realize its potential to change the world.

As he compares the small, scrappy EDF of the early years to the large, sophisticated organization of today, Wurster, 85, can only marvel at the change. "It's been an amazing ride," he says, "a wonderful experience. I consider myself incredibly lucky to have been part of the EDF story."

ANATOMY OF AN ENVIRONMENTAL WIN



In this first-person account, Charlie Wurster tells how a handful of committed scientists and lawyers set out to save ospreys in a small Long Island town and ended up winning a nationwide ban on DDT while founding EDF. Buy it at: edf.org/GetDDTWars.



ALAMY

DDT was causing the eggshells of ospreys and other beloved raptors to crack.



Rethinking the American West

By Peter Klebnikov

Palm Springs, CA, early 21st century

In the West, the bill for the American dream has finally come due. With the region facing an epic drought, a reckoning is now inevitable. EDF believes the crisis is an unparalleled opportunity to use water more efficiently for the well-being of people and wildlife.

“**O**NE CANNOT BE PESSIMISTIC about the West,” Wallace Stegner once wrote. “This is the native home of hope.”

But this spring, when the Sierra Nevada snowpack dipped to an all-time low—5% of its normal depth—and California Governor Jerry Brown responded with historic 25% cuts in water use by cities on top of existing water restrictions for agriculture, hope seemed in even shorter supply than water.

In fact, the ongoing drought throughout the West is so grave that the question arises: If cities and farmers are vying for the same scarce water, will wildlife lose out?

Not if we do things right. EDF experts believe that the current fear of shortages has created a historic opportunity to transform how the West uses water. We’re proposing solutions to the crisis that can

benefit wildlife while keeping farmers in business and communities thriving.

Banking on groundwater

In the arid West, aquifers are vital for drinking water, irrigation and ecosystems. But until last September, California did not have laws in place to regulate groundwater. “The worsening drought has led to an uncontrolled race by farms and cities to grab the deepest straws and suck aquifers dry,” says Ann Hayden, who directs EDF’s work on water and habitats in California. “That’s a recipe for disaster.

“You can view groundwater as a type of savings account,” Hayden adds. “You can borrow water from your aquifer ‘bank’ in dry years and pay it back in wet years. But you must keep enough water in the system to maintain healthy ecological functions.”

Now a new state law requires local

districts to maintain safe levels in their aquifers but offers little guidance on how to do so. “Local communities have been left to their own devices,” says Hayden.

In response, EDF is helping communities identify the best and fastest ways to protect their groundwater. We will provide scientific and economic analysis to the most at-risk areas in the Central Valley, which have been overdrawing their aquifers for years.

Making agriculture more efficient

A century ago, Paul Kehmeier’s great grandfather dug a ditch in an upland valley near Eckert, CO, to bring water from a river to his farm. The ditch is still there, but today he’s working with EDF to see how little water his alfalfa fields can use and still be viable.

“I know we need to innovate to make our farm increasingly efficient in the use of water,” says Kehmeier. “Shortages could drastically change or even halt this way of life.”

Agriculture uses more than 80% of available water in most western states. Parched cities have plenty of money to buy farm water. But instead of paying farmers to let their land go fallow—the common practice—why not have cities

pay for efficiency upgrades on farms like Kehmeier's and let them stay in business? To help realize this idea, EDF is working on demonstration projects showing how farmers across the West can conserve water in the face of drought and climate change.

Water made available through conservation may be left in streams and reservoirs as a hedge against shortfalls. With this in mind, the federal government and municipal authorities in Arizona, California, Colorado and Nevada recently agreed to commit \$11 million to pilot conservation projects that will reduce consumption from farms and cities and allow it to replenish Colorado River reservoirs. EDF is working to identify projects that generate environmental benefits. For example, the movement of saved water through the system could be timed to improve stream flows when river levels are low and fish are dying.

"These are first steps toward managing the Colorado River better," says Aaron Citron, who manages EDF's ecosystems water work. "Rather than going to court to decide where the last drops will go, we can work together to create incentives that make conservation profitable."

Help for wildlife

Western water laws haven't changed much since the late 1800s, and they frequently penalize conservation. As policy makers modernize the rules, there's a real risk the environment will be left out of the equation. "We need to build the case

that, by helping the environment we help people," says EDF's Ecosystems VP David Festa.

To maintain a healthy urban and agricultural water supply, for example, it's critical to keep wetlands, floodplains and rivers resilient so they can recharge aquifers.

One way to increase investment in ecosystems that conserve water is through habitat exchanges. These exchanges, pioneered by EDF, pay landowners to create and protect habitat vital to threatened species. In California, we're developing habitat exchanges for migratory birds, Chinook salmon and giant garter snakes.

EDF is also working with potential partners and investors such as the Metropolitan Water District (the state's largest urban water user) to help launch a habitat exchange for the Swainson's hawk in Yolo County. The hawk has lost most of its nesting habitat along the state's rivers and streams. In the exchange, we plan to pay farmers to plant trees along rivers and grow crops that provide habitat for prey. This riparian forest habitat also creates shade to cool the river water, which benefits juvenile salmon.

Even relatively modest amounts of water can help wildlife. Last spring, EDF helped Mexico and the United States negotiate a "pulse flow" of water to the parched Colorado River delta, a once-teeming ecosystem. Designed to mimic spring floods and coincide with the spring migration of birds, the release



ROBB HEISE

Paul Kehmeier on his Colorado farm: "Thanks to recent innovations, I hope to pass on the farm to the next generation."

used less than 1% of the Colorado's annual flow. The two countries are now discussing future pulse flows to help revitalize the fabled Colorado River delta.

The drought has also touched industry, which needs to end wasteful water practices.

Connecting the dots between energy and water

Texas, for example, is only now emerging from its worst drought on record. The state relies heavily on coal and natural gas power plants for electricity, and large plants use massive amounts of water for cooling. In contrast, wind energy and solar panels require little or no water.

Kate Zerrenner, who leads EDF's work on the energy-water nexus in the Lone Star State, is pressing Texas regulators to take advantage of the huge water savings they would reap by switching to clean energy. She points out that the state could save 21 billion gallons of water from the power sector alone by 2030 by transitioning to energy sources such as wind and solar. That's enough to fill the entire San Antonio River in four years.

"The issue of water scarcity gets attention on both sides of the aisle," says Zerrenner. "It impacts everyone."

With the drought now entering its fifth year, the dream of the West has not faded. But it is changing.



BETTY

One of America's last healthy desert waterways, Arizona's Verde River is threatened by unregulated groundwater pumping. Working with recreational businesses, EDF is helping develop a groundwater banking project for the river.

Forgotten no more

EDF helps a community plagued by toxic chemicals

By Leslie Valentine



Community activist Yudith Nieto is fighting for healthy air for her family and neighbors.

THE SIMPLE BUNGALOWS WITH fruit trees in the yards could be in any small Southern town. But then a line of 18-wheelers rumbles down the street—because this is Manchester, a Houston neighborhood on the booming ship channel and ground zero of the biggest petrochemical complex in the nation. Residents breathe fetid air and complain of explosions and toxic flares from a huge refinery that looms over the community.

“It didn’t take me long to realize something was not right with our environment when I first moved here as a child,” recalls Yudith Nieto, who has lived in Manchester more than 20 years. “I’d

get nosebleeds, a burning throat and headaches, and I got asthma when I got older.” Many of her family members suffer similar ills, and studies have identified a link between benzene exposure and leukemia.

“There is definitely an increased health risk for people who live in pollution hot spots,” says EDF’s Dr. Elena Craft, a toxicologist whose work focuses on low-income, minority communities that often are disproportionately exposed to air pollution. Because neighborhood pollution from expressways, refineries and ports is not always detected by EPA’s stationary air monitors, “we need to get more localized data,” she explains.

Working with residents

So Craft partnered with the Texas Environmental Justice Advocacy Services and Air Alliance Houston to help Manchester residents acquire portable air monitors to provide a more accurate picture of what they’re breathing—and give them the information they need to demand change.

Her activism and expertise have made Craft a go-to person to weigh in on risk assessment science for Texas environmentalists. “We often turn to her for help on these issues,” says Air Alliance Houston executive director Adrian Shelley.

Manchester offers a grim reminder that federal refinery rules have not done an adequate job to protect communities from petrochemical pollution. Last year,

EPA finally proposed revised rules. We’re pressing for stronger rules and have mobilized almost 35,000 EDF members to urge EPA to strengthen that proposal before the rules become final this year.

In April, Manchester got its moment in the spotlight, when EPA Administrator Gina McCarthy met with residents and announced long-overdue changes to EPA’s method—based on a 30-year-old study—of estimating petrochemical plant pollution. For example, the revisions show that poisonous hydrogen cyanide emissions could be ten times higher than previously thought.

“People need safe, healthy places to live,” McCarthy told the audience.

Another source of Manchester’s air pollution that EDF is helping address is the nearby Houston port, one of the nation’s busiest. About one-third of its smog-causing nitrogen oxide emissions comes from roughly 3,000 short-haul trucks.

Craft and her allies helped create a low-interest loan and grant program that has helped truckers replace 200 of the most polluting trucks with new models that are more fuel-efficient and cleaner burning. McCarthy recently announced additional grants to expand the program.

With some 13 million people working at U.S. ports and millions more living nearby, EDF is taking what we’ve learned in Houston to help other ports around the country slash pollution.

“At the end of the day there has to be hope,” says Yudith Nieto, “hope that our voices will be heard.”



MICHAEL STRAWATO

“Dr. Elena Craft and EDF have helped us build partnerships that can be a model for other ports around the country,” said Gina McCarthy (right), with Craft in Houston.

Letters



EDF Climate Corps stands up for the environment.

Millennials demand sustainable food

“Regarding EDF’s work with farmers and Walmart to reduce fertilizer use: A new breed of food and agriculture entrepreneurs are working for a healthier planet and displacing conventional businesses. It would be great to have regulatory reforms, but good old American ingenuity is driving progress. Consumers really do vote with their wallets, and no doubt the big companies have felt out of favor with millennials as that generation’s purchasing power increases as a percentage of household income. Enterprises can still be profitable while generating environmental benefits.” —**Jason Ingle**

Wanted: activists

“People already know that global warming emissions are a problem. EDF would be better served by teaching young folks how to write their representatives. Show them how to comment on an environmental impact

statement, and what the Federal Register is. Teach them to run for office. Show them how to influence the administrative process. Demonstrate that tools of democracy that get people involved really do work.”

—**climatecote (via edf.org)**

Dr. Alicia Kolar Prevost, director of EDF voter mobilization, responds:

Empowering young voters is central to EDF’s strategy on climate. Our campaign “Defend Our Future” is mobilizing young people to show their support for climate action at the ballot box. In June, we brought 50 college student leaders to the White House to learn about the Clean Power Plan and spread the word on campus. In Iowa and New Hampshire, we’re recruiting young voters to declare they’ll vote for candidates who act on climate.

>>>SIGN THE PLEDGE >>> Make your voice heard at defendourfuture.org.

We want to hear from you!

Email us at editor@edf.org

Give us your best shot for our new photo gallery

Our theme: “Everyday Nature”

Do you like to take pictures of the natural world (including people) in your day-to-day life? Often we overlook wonders because they’re close to home or we’re so used to them. Well, we’d like to see them. We’ll showcase the best, most original work in this magazine and on edf.org. Surprise us. Amaze us. Send your three best photos to edf.org/bestshot.



STAFF PICKS

New books on climate

Polar opposites

How culture shapes the climate change debate



How did the issue of climate change become so caught up in the culture wars? Author Andrew Hoffman, a professor at the University of Michigan, seeks to answer that question. His book “is a much-needed analysis of how humans process information,”

writes EDF president Fred Krupp, “and how that messy mix of reason, emotion and cultural influence shapes and reinforces our views on global climate change.”

The road to success

Driving the future: Combating climate change with cleaner, smarter cars



Historically, the auto industry has fought tooth and nail against every EPA-proposed regulation. When EPA proposed that automobiles reduce pollutants, for example, Ernest Starkman, then a vice president

at General Motors, claimed the standards may stop the “entire GM production.” Instead of destroying the auto industry, pollution standards helped transform an ailing industry into a global competitor selling efficient vehicles.

Author Margo Oge, a former director at EPA, provides an insider’s account of how the battle was fought and won. She tells how EDF and our allies played a key role in the early days of the clean car movement through the landmark 2012 Clean Air Act deal with automakers—the nation’s first action targeting greenhouse gases.

What do you recommend?

Share what inspires you as an environmentalist with other members at editor@edf.org.

“If there is magic on this planet, it is contained in water.”

**—Loren Eiseley
Anthropologist**