

# SOLUTIONS

Vol. 42, No. 4 / Fall 2011

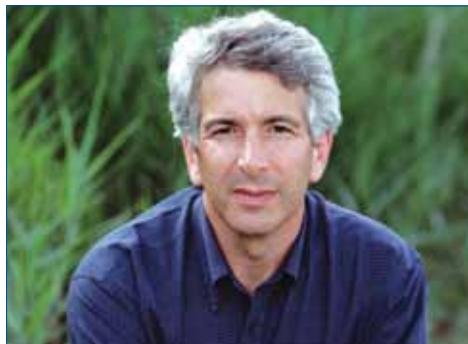
> **DAWN IN NEW ENGLAND**

A brighter future for America's  
most troubled fishery

PAGE 8

# WHERE WE STAND

By EDF President Fred Krupp



## The best way to avert a civil war over shale gas is to get tough on fracking

This summer, while visiting a Pennsylvania community that is riddled with natural gas wells, I heard a mother describe how she was forced to leave her family farm because of severe air pollution. Ever since the drilling began, she said, her young son had grown increasingly ill. She now lives in her car.

The natural gas drilling technique known as hydraulic fracturing, or fracking, has opened up vast deposits of gas around the country. But many Americans don't believe it can be tapped without paying an unacceptable price in pollution of our air, water and communities. To be blunt, the gas companies have a credibility problem. And they've earned it.

In March, President Obama directed Energy Secretary Steven Chu to appoint a committee of seven energy and environmental experts to recommend solutions to the rising antagonism between the gas industry and those who oppose it. I agreed to serve on the committee, which recently delivered its first report (*see p. 5*), because I believe we can safeguard our air and water *and* develop this American resource.

During 90 days of investigation, we heard from industry, regulators, scientists and others. We visited well sites. We held a public meeting in Pennsylvania, where people living with shale gas development passionately defended and opposed it. For some, it was an economic lifeline. For others, a nightmare.

One thing was clear: Industry secretiveness is a major reason for the public mistrust. During field visits, the smell of vapors issuing from the equipment was inescapable. And I was struck that these emissions were not being captured or even measured. In the future, gas companies must be required not only to provide more data on fracking chemicals, methane leakage and drilling wastewater, but to fix associated environmental and human health problems.

Debate among committee members was productive, if sometimes contentious. Our interim report is a good starting point. Most importantly, it calls for increased oversight, robust regulation and modernized rules that safeguard communities. Agencies must have adequate resources for inspection and enforcement.

The next challenge is to get our recommendations implemented by federal and state government. For this, we need serious partners in industry. Top performers need to step away from the pack and show how gas can be developed safely. They need to press for strict regulations and enforcement lest bad actors continue giving the industry a black eye.

Here is the bottom line: Clean air and clean water is everyone's right. We must preserve it.

A handwritten signature in black ink that reads "Fred Krupp". The signature is fluid and cursive, with a long, sweeping underline that extends to the right.



Environmental Defense Fund's mission is to preserve the natural systems on which all life depends. Guided by science, we design and transform markets to bring lasting solutions to the most serious environmental problems.

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



### ON THE COVER:

How to save America's fisheries is a question of passionate debate around the country.

EDF senior writer Rod Griffin went dockside in New England to talk to fishermen about how our solution is being put into practice. The cover of this issue was shot on board the *Proud Mary*, a trawler out of Port Galilee, R.I. that's participating in the revival. *See page 8.*

Cover photo: John Rae

## SOLUTIONS

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©2011 Environmental Defense Fund.  
Published quarterly in New York, NY.  
ASSN 0163-2566

New York / Austin / Bentonville, AR / Boston / Boulder / Raleigh / Sacramento / San Francisco / Washington / Beijing, China / La Paz, Mexico

## LETTERS AND COMMENTS FROM READERS

Our opponents' war on America's clean air protections continues unabated (see *story*, page 4).

Seeking to demonstrate popular support for strong environmental rules, EDF called on our supporters to speak out. Within days, you sent more than 100,000 email messages urging Congress to stop dirty-air lobbyists. Thousands of EDF supporters also bombarded the Facebook page of the utility American Electric Power (AEP), a leader in the pollution lobby, prompting it to post this defense:

"Emissions from our coal-fired plants are lower than ever before. We have cut our sulfur dioxide and nitrogen oxide emissions by 80% since the 1980s."

Unstated is that AEP cut pollution because it was forced to, under the Clean Air Act—which the utility had fiercely resisted. EDF received more than 1,500 comments, many heart-wrenching, from supporters alarmed at concerted attempts to roll back health protections. A sample:

"I have experienced the horrible pollution in Mexico City and many parts of Eastern Europe—is this really the same standard

we want to set for our country? Eliminating basic air and water safety regulations will doom future generations to an even shorter life expectancy and a lower standard of living. Why must this issue be cast in Red or Blue? This is a Red, White and Blue problem." —**Cindy H., Pfafftown, NC**

"It's time for AEP to become the responsible frontrunner among corporations. The bottom line is children and their lives. Every mother and father I know will gladly part with the dollars in their wallets to ensure the health of their children!" —**Sandra (via Facebook)**

"I am a grandmother of four, all girls, and each of them has a respiratory problem! I know that these illnesses come from bad air pollution. Not a month goes by without one of my granddaughters having to go to the hospital for help with their breathing.



Jim West

**The dirty-air lobby is playing with our children's health.**

When will our children be able to breathe clean air?" —**Kathy W., Philadelphia, PA**

America's elected officials need to hear more such voices. Here's what you can do:

**Join Moms Clean Air Force, concerned Americans fighting for their kids' health, at [momscleanairforce.org](http://momscleanairforce.org)**

EDF wants to hear from you. Submit comments by email (see page 2) or visit [solutions.edf.org](http://solutions.edf.org). All printed letters are edited for clarity and length.

## EDF'S CAPTION CONTEST: WE'VE GOT A WINNER!



"Oh well—let's go grab a human."

Solutions received hundreds of great entries to our latest cartoon caption contest. We got many good laughs and wish we could run more than our two favorites.

The winner (at left) came from Bill Grueneberg. And Larry Edmonds submitted the runner-up: "Shall we stop by the grocery for farmed tilapia, dear?"

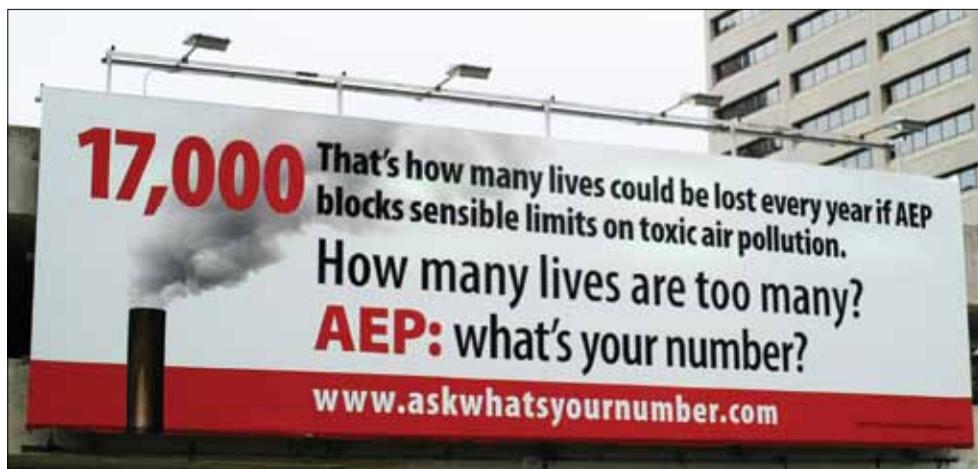
## A NEW WEBSITE!



**Bold, bright, dynamic, easy to use. Explore it; let us know what you think.**  
**[edf.org](http://edf.org)**

# PUTTING THE HEAT ON AEP

Why is the energy giant trying to derail life-saving pollution rules?



Next to AEP headquarters, EDF's billboard is a stark reminder of the cost of toxic air.

Early this April, lobbyists for one of America's biggest polluters, the utility American Electric Power (AEP), quietly circulated a 56-page draft bill in Congress, blandly titled the Electric Power Regulatory Coordination Act of 2011.

The bill was a stealth attempt to scuttle proposed EPA rules that would require utilities to reduce emissions of soot, sulfur dioxide and mercury, all produced by coal-fired power plants.

Within days, EDF's legal team issued an analysis that showed the real damage the bill would do. By derailing EPA's rules, it would cause an estimated 17,000 deaths and 110,000 asthma attacks in its first year of implementation alone.

Fred Krupp, EDF's president, called it "Washington at its worst, corporate lobbyists writing legislation to block limits on pollution—and then shopping around for sponsors in Congress."

EDF's analysis was broadly disseminated through the media and on Capitol Hill, where even coal-friendly legislators scrambled to distance themselves from AEP's bill. EDF members sent 100,000 messages to Congress, urging legislators to stop corporate lobbyists from undercutting health-based air standards. Thousands more sent Twitter messages and Facebook posts.

Still AEP keeps trying. In June, it lamented that the air rules would be a

disaster, forcing it to close some plants—a misleading claim, since the utility was already planning to close these obsolete plants. What's more, at the same time, the utility was telling stockholders it was well prepared to meet the new standards.

For its part, EDF and partners like the Moms Clean Air Force are keeping the pressure on utilities not to join AEP's cynical dirty air campaign. In July, we helped organize a demonstration in front of AEP's Columbus, OH headquarters. Nearby, we've placed a billboard ad asking if the utility really thinks 17,000 Americans a year should die so it can continue polluting our air.

## Invisible riders

With opponents of environmental protection, if one approach doesn't work they'll try another. One ploy is to get compliant congressmen to slip so-called riders into the giant bills that fund the government. Written in obscure language, these riders would transform federal policy. Here's a recent House rider:

**Sec. 435.** None of the funds made available by this Act or any subsequent Act making appropriations for the Environmental Protection Agency may be used by the Environmental Protection Agency to develop, adopt, implement, administer, or enforce

a change or supplement to the rule dated November 13, 1986, or guidance documents dated January 15, 2003.

**Translation:** This would block EPA's attempt to strengthen protections for wetlands that filter pollution and prevent flooding.

This summer, an unprecedented 40 anti-environmental riders were added to the 2012 spending bill for the Interior Department and EPA. They reveal the scope of the pollution lobby's attack on public health and the environment. If they became law, they could:

- Prevent EPA from regulating mercury, smog and soot from power plants.
- Bar EPA from spending to enforce the agreement between the administration and car manufacturers to raise vehicle fuel economy, effectively killing the deal.
- Open up one million acres adjacent to the Grand Canyon to uranium mining, despoiling that iconic landscape.



Stealth legislation supported by the mining industry threatens the Grand Canyon.

EDF is fighting back with tough radio and billboard advertisements in key states that focus on the threat to children's health. The ads target fence-sitting House members.

**▶ TAKE ACTION: Tell Congress to stand up for the nation's bedrock environmental laws at [edf.org/stoppolluters](http://edf.org/stoppolluters)**

# CLEANING UP THE FRACKING MESS

J. Feir



In August, the Secretary of Energy's Advisory Board on Natural Gas issued a pathbreaking report, its first, on how to ensure the safe development of America's natural gas resources. "Our report breaks new ground with some fairly bold recommendations, and I'm proud to be part of it," says Fred Krupp, EDF's president, who serves on the committee.

In recent years, energy companies have learned how to tap natural gas trapped in vast shale deposits deep underground. Hydraulic fracturing, or fracking, injects pressurized water into wells, along with sand and chemicals, creating cracks in shale formations and releasing the gas.

There may be enough recoverable natural gas to meet this country's needs for 100 years. This has sparked a gold rush. In 2001, shale gas contributed less than 2% of the nation's natural gas. Today, it accounts for nearly 30%.

This boom has created jobs and an energy source that potentially cuts CO<sub>2</sub> emissions. But serious challenges have also emerged, including dangerous air pollution levels, contamination of ground and surface water, devastated rural areas, the uncontrolled release of large amounts of methane (a highly potent greenhouse gas), and unsafe disposal of wastewater and chemical additives.

The report says: "These adverse

environmental impacts need to be prevented, reduced and, where possible, eliminated as soon as possible. Absent effective control, public opposition will grow, thus putting continued production at risk."

One problem is that the industry is often its own worst enemy. "On the one hand they tell you what they are doing is safe," says Mark Brownstein, EDF's counsel for energy. "On the other, they refuse to share the data so you can judge for yourself."

A key recommendation in the committee report calls for much more oversight, regulation and transparency, including disclosure of all chemicals in fracturing fluids. Other recommendations:

- Substantially cut emissions of methane, air toxics and ozone-forming pollutants.
- Implement better water management practices at every stage of production.
- Manage cumulative impacts on communities, land use, wildlife and ecosystems through regional planning.

"These measures won't solve every problem overnight," Krupp says. "But if they are implemented, we'll have a new

level of transparency in the industry that will drive operators toward better environmental performance and allow the public and regulators to really tackle these problems."

Beyond the committee, EDF has played a lead role in a coalition that sued EPA, forcing it to propose rules to reduce the air pollutants from oil and gas production. We also helped pass a groundbreaking Texas law mandating disclosure of fracking chemicals, and we're working with progressive gas companies on model rules for well construction and operation.

In the end, "natural gas can play an important role in reducing greenhouse gases," says EDF senior policy advisor Scott Anderson. "But only if it's produced in a manner that's good for the environment and public health."



U.S. Energy Secretary Stephen Chu wants shale gas development to be safe and sustainable.

AP Photo/Eric Jamison

# CLIMATE CHANGE IS ALREADY HAPPENING AND TODAY'S WILD WEATHER IS ONE SIGN OF IT

Increase in CO<sub>2</sub> levels 

Since the 1980s, climate scientists have predicted that a warming planet—largely the result of carbon dioxide (CO<sub>2</sub>) emissions from human activities like the burning of coal and oil—would bring more violent weather, from droughts to fierce storms. In this decade, that prediction is coming true.

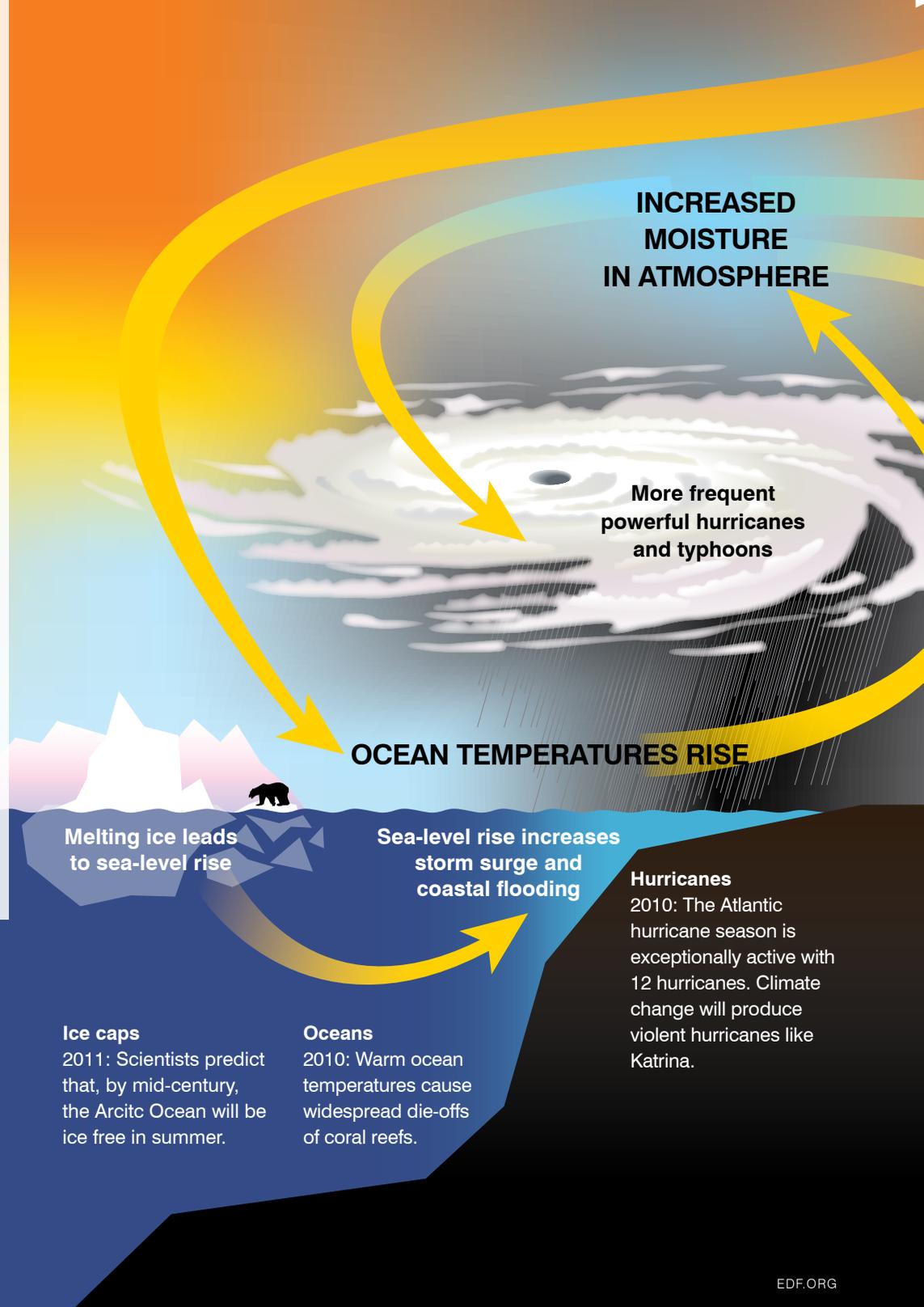
In fact, weather disasters have struck every part of the globe in recent years. So far, 2011 has brought us plenty of wild weather, including Hurricane Irene, and hurricane season is not yet over.

Extreme weather begins with heat, and we've had plenty of that, setting new records in each of the last three decades. Last year was the hottest ever, but it's unlikely that record will stand for long.

All that heat loads the dice for weird weather, because warmer air holds more evaporated water, which provides more energy to shifting air currents and changing weather patterns. The result is more intense hurricanes, typhoons, nor'easters, rainstorms, floods, blizzards, heat waves and drought.

It's time to admit the weather isn't what it used to be—and to start doing something about it.

Illustration: Carol Zuber-Mallison



# OPENING...

## HOTTEST DECADES ON RECORD

#1 2000 - 2010

#2 1990 - 2000

#3 1980 - 1990

## Rising global temperatures

SHIFTS IN  
AIR CURRENTS AND  
WEATHER PATTERNS

More, and  
more extreme,  
blizzards

More intense  
rain storms

Drier  
conditions  
lead to  
more wildfires

Increase  
in severe  
droughts

Increase in  
devastating  
floods

### Blizzards

2010: Back-to-back snowstorms, dubbed "Snowmageddon," paralyze the Mid-Atlantic and shatter snowfall records in Washington, Baltimore and Philadelphia.

2011: The Groundhog Day blizzard hits dozens of states, from New Mexico to Maine, paralyzing air and highway travel in much of the nation and causing about \$2 billion in damage.

### Floods

2010: Flooding from Pakistan's worst monsoons in 80 years leaves 20 million homeless. Economic damage: 10% of nation's GDP.

2011: The worst Mississippi River floods since 1927 hit seven states. Memphis is evacuated and parts of Louisiana are deliberately flooded to save Baton Rouge and New Orleans.

### Extreme Heat

2011: It is the hottest July on record in much of the United States. A number of cities in Texas set a record for consecutive days above 100°.

### Droughts

2011: The South is gripped by drought. Millions of acres of Texas farmland are abandoned; agricultural losses hit \$5.2 billion.

The Horn of Africa suffers its worst drought in 60 years, contributing to widespread famine. Since 2000, severe droughts strike every other year.



# A NEW DAY FOR FISHING

By Rod Griffin

Commercial fishing was once the economic engine of the New England colonies. But generations of overfishing and faulty management proved devastating for fish and coastal communities. Now, some trailblazing fishermen are embracing a market solution that could put the 400-year-old fishery on the path to recovery.

On an August morning before sunup, Captain Chris Brown steers his 45-foot trawler, *Proud Mary*, out of Port Galilee, RI, past Pt. Judith Light and into Rhode Island Sound. It's a journey he's made thousands of times.

Brown was just eight years old when he first went to sea in the 1960s, fishing with his grandfather. He was allowed to pilot the boat home while his grandfather made sketches of the Block Island shoreline. "It was a thrill to feel the power of the boat," he says.

The New England fishery has fallen hard since those days. Revenues have dropped 50% just in the past decade and many of the groundfish stocks have declined to dangerously low levels. And Brown, 53, is taking a risk to preserve his industry and his family's way of life.

"Fishing with my grandfather, I got to

## “I’m a very good fisherman, but I can’t outsmart a closure or a failed fishery.”

—Captain Chris Brown

see the ocean as healthy as we’ve seen it,” he says. “That gives me an incentive to get it back to that. I don’t want to leave it broken.”

Since last year, Brown has been operating his boat, named for his wife, under new regulations that could save the troubled 400-year-old New England fishery. With EDF’s help, New England is one of several regions that have implemented catch shares, a management tool that is proven to restore depleted fish stocks and fishermen’s livelihoods.

Working with EDF, scientists and other fishermen, Brown has become a leader in a region—and an industry—that traditionally resisted change. “Catch shares will put more fish on the table and more money in fishermen’s pockets,” he says.

### The day the cod disappeared

New England waters were once so thick with cod that colonial fishermen bragged they could lower a basket and pull it up full of fish. But during the 1960s and 1970s, foreign factory boats hammered fish stocks along U.S. coasts, including those of Georges Bank, off New England.

In response, the U.S. Congress passed the Magnuson-Stevens Act, extending U.S. waters to 200 miles. Within three years the New England groundfish fleet doubled in size and was overharvesting fish just as the foreign fleets had been. “Turns out we became more efficient at destruction than they were,” says Brown.

Fishery managers responded mostly by reducing the number of days fishermen could fish and imposing trip limits. But this only compelled fishermen to race the clock to catch as many fish as possible in the brief time allowed.

Fish were often discarded, either because regulations required it or to avoid dockside surpluses that would depress prices. “The first time we realized we had to kick a fish overboard to continue fishing, we should have stopped right there,” Brown says, “but the government didn’t know what they were doing.”

By 1995, the amount of cod on Georges Bank had plummeted to just one-fifth what it was in 1980.

“We fished in ways that I’m not proud of,” Brown adds, “but at the time we didn’t realize the consequences. I’d like to make it right for the next generation.”

### Fishing smarter, not harder

In 2008, Brown developed a pilot catch-share program for fluke, or summer flounder, in Rhode Island waters. In exchange for accepting a strict and verifiable limit on their catch and more accountability, fishermen were granted flexibility to fish whenever they wanted. The success of that effort inspired Brown to participate in a similar federal program, which EDF helped implement and design, for 13 species of groundfish, including the iconic Atlantic cod and haddock.

The new catch-share program, which began last year, gave New England’s commercial groundfishermen a choice: continue with the old system or join fishing cooperative groups called “sectors.” Sectors work by allotting a percentage of a scientifically determined allowable catch, revised annually, to groups based



**Sushi-grade:** High quality fluke brings a premium price at the dock.

on their catch history. More than half of commercial fishing permit holders—representing 98% of the fish harvested—joined the program.

Unlike other fishery management tools, catch shares reward fishermen for conservation. “First, a catch limit is set that allows a fishery to recover,” says EDF project manager Emilie Litsinger. “Then, as the fishery revives, managers can raise the total annual catch limit and each fisherman’s percentage share grows in value.”

Data for the first year in New England shows that revenue remained stable 



“I’m a businessman,” says Brown. “I’m concerned about my inventory.”

even though landings were down slightly. Boats in the program made 70% more money per trip than previously, and bycatch, the accidental killing of unwanted fish, was only about one-fourth that of other boats.

“We’re making more money selling the same number of fish—and burning less fuel doing it,” says Brown.

With catch shares, fishermen have the option to trade their quota with other boats if the need arises. For example, if Brown catches more than his allotted share—or a species other than the one targeted—he can buy shares from someone else, still keeping the total catch within the limits. The result: less waste and more profit.

“My grandfather said ‘You only kill ’em once, make sure you sell ’em when you do,’” recalls Brown. “Catch shares allow me to do that.”

### Speeding fresh fish to market

On this August day, Brown is fishing for fluke. He returns to port with 700 pounds in the hold, all of it committed to restaurants and suppliers in advance.

Thirty-five miles away at Nicks on Broadway, a chic bistro in Providence, chef-owner Derek Wagner can barely contain his enthusiasm. “I’ve never seen such fresh fish,” Wagner says, as he prepares a plate of raw fluke. “Our customers are blown away.”

Getting the freshest fish to local restaurants is the whole point of Trace and Trust, an innovative web-based program through which Brown and two other Point Judith fishermen, Steve Arnold and Bob Westcott, deliver fish directly to restaurants under their own label, Wild Rhody. Trace and Trust offers restaurants and customers a reassuring guarantee that their seafood is fresh and sustainably caught in local waters.

Using smart phones, the fishermen regularly communicate with chefs, taking orders and providing real-time updates on the species they are taking on a given day. On the Trace and Trust website ([traceandtrust.com](http://traceandtrust.com)), consumers can learn when and where their fish was caught and by whom. Two dozen restaurants in Rhode Island and Massachusetts are participating in the program, which is expected to expand.

## CAPTAIN’S LOG

### From sea to sashimi

Wouldn’t it be nice to know where the fish on your plate came from—and that it was caught sustainably? A group of entrepreneurial fishermen are using modern technology and plain business sense to sell their catch directly to restaurants in Rhode Island and the Boston area. The venture, called **Trace and Trust**, is satisfying a growing appetite for local, wild-caught seafood. On a typical day, the business works like this:



**4:58 am**  
The *Proud Mary* heads for Rhode Island Sound in search of fluke and squid.



**7:15 am**  
The crew sets the first of several trawls east of Pt. Judith and south of Newport, RI.



**12:40 pm**  
Using his smart phone, Captain Chris Brown checks in with chefs at several restaurants to report on the day’s catch and agree on deliveries.



**2:15 pm**  
The vessel returns to port and offloads 700 pounds of fluke, some spoken for by restaurants and the rest destined for wholesalers.



**3:30 pm**  
The fresh fluke arrives at Nicks on Broadway, a restaurant in Providence. Chef Derek Wagner explains how fresh fish has expanded his menu.



**6:45 pm**  
A plate of Pt. Judith raw fluke, or crudo, is served with local vegetables to the delight of customers.

Photography by John Rae



PhotoEdit

**As fisheries begin to revive, New England communities have a chance to hold on to an industry that has sustained them for 400 years.**

“This couldn’t have happened under the old system of fisheries management,” says Brown. “Now we can fish to the prompts of the market. We’re becoming businessmen, finally, instead of just hunters and gatherers.”

### Challenges remain

Over the last five years, catch shares have compiled a solid record of success around the nation, including programs EDF helped implement for red snapper in the Gulf of Mexico and groundfish in the Pacific. A 2008 study in *Nature* showed that globally fish populations with catch shares increased 400% over a 17-year period, while many other fisheries were plummeting.

Still, challenges remain as New England’s fishing industry goes through the difficult process of adjustment. Fishermen are struggling under low annual quotas, put in place to reverse the long-term damage to stocks caused by overfishing. At the same time, they are adapting to a dramatically different management system—one that requires them to change the way they do business day to day.

“We have to remember that this is a major transformation and there are so many years of mismanagement to correct,” says Litsinger. “Change takes time.”

With the New England program entering its second year, EDF and its

partners are continuing to refine and improve it. We are committed to ensuring that this innovative management system provides a real future for the fishing industry and for the fish it depends on.

EDF is equally committed to New England’s individual fishermen, and to seeing that they have the support they need to reap the benefits of catch shares

**“There are so many years of mismanagement to correct. Change takes time.”**

—EDF’s Emilie Litsinger

management. Among other things, we are working on innovative ways to help small-boat operators financially, and we’re strengthening the catch monitoring system to ensure that it is more cost effective and accurate.

We’re also leading the fight to defeat a wrongheaded measure on Capitol Hill, introduced by Rep. Walter Jones (R-NC), to amend the 2012 budget in ways that would restrict the use of federal funds to implement new catch-share programs.

“In New England, sectors are proving that fishermen can be good managers if given the chance,” says Brown. “Since I was a kid, I’ve been taught to leave no trace. Our fishing patterns should be the same. If we want to make this right, we all have to pull together and start acting like a community again.”

## NET GAIN FOR FISH AND FISHERMEN

In 2007, EDF helped create a catch-share program for Gulf of Mexico red snapper, which faced declines similar to those of New England groundfish. The program has proven to be a spectacular success.

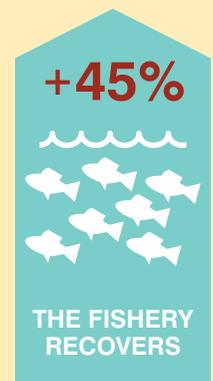


The fishing season has expanded from a couple of months to 365 days, ending the dangerous race for fish.



As the fishery recovers, the value of catch shares has risen dramatically, benefiting fishermen and the coastal economy.

Under size limits and shortened seasons, nearly half the red snapper caught used to be thrown back, dying. Now the discards have dropped sharply.



As commercial fishermen waste less fish, red snapper populations are rebounding, allowing fishermen to catch more fish each year.



Getty/Jupiter Images

## WHERE DO LAWNS GO IN THE WINTERTIME?

Finding a useful afterlife for yard trimmings

By Jim Motavalli

The idea that American homes should feature smooth green lawns arrived from Europe only in the mid-19th century, but today the great American lawn stretches from coast to coast. And that means figuring out how to dispose of an awful lot of trimmings.

Yard trimmings, which include grass, leaves, branches and brush, make up about 18% of all municipal waste, according to EPA. The encouraging news is that they needn't be waste.

### Save that grass!

According to Chris Starbuck, a professor of horticulture at the University of Missouri, grass clippings (which contain nitrogen, potassium and phosphorous) can provide 25% of a lawn's fertilizer needs. He recommends setting mowers at a tall setting and letting the clippings fall where they may. Mulching mowers are best for this, because they cut the grass into smaller pieces and distribute them more evenly.

### The composting solution

Composting can significantly cut down

on household waste, and the Internet offers great instruction on building your own composting bin. Grass by itself can be a problem, either because it's recently been treated with chemical weed killers, or because it has a tendency to pack down so thickly that there is no room for aeration to aid in decomposition. So mix your grass with flowers, leaves and twigs along with kitchen waste like leftover

vegetable and fruit scraps, coffee grounds and eggshells. Do *not* include meat scraps, bones, dairy products or cat litter. Turn the pile over at least once or twice a month for faster decomposition and healthier compost.

Compost is great for suppressing weeds, holding in soil moisture, encouraging earthworm activity and preventing erosion, says the University of Minnesota extension service. Spread a two- to four-inch layer around the base of plants, adding new layers over time. To promote the growth of annuals, compost can be worked into the soil at the end of the season. For perennials, it's better to remove the compost in the spring to help the soil thaw.

### Leave the leaves

Burning leaves "leads to air pollution, health problems and fire hazards," EPA says. The practice, now banned by many state and local governments, also produces particulates that can lodge in lungs, causing coughing, wheezing, shortness of breath and even long-term respiratory problems. Rosie Lerner of Purdue University's extension service says that even whole leaves can be an effective mulch, but shredding them with a lawnmower will help them break down faster.

## SOLUTIONS TO YARD WASTE

- The U.S. Composting Council promotes organic recycling through composting at: [compostingcouncil.org](http://compostingcouncil.org). [HowtoCompost.org](http://HowtoCompost.org) and [MasterComposter.com](http://MasterComposter.com) also offer useful information and tips.
- EPA lists the health effects of burning leaves at: [epa.gov/ttnatw01/burn/leafburn2.html](http://epa.gov/ttnatw01/burn/leafburn2.html). Purdue University's "Please Don't Burn Your Leaves" site is at: [hort.purdue.edu/ext/burnleaves.html](http://hort.purdue.edu/ext/burnleaves.html).
- The nonprofit Lawn Institute has information on all things lawn-related at: [lawninstitute.org](http://lawninstitute.org).
- The University of Minnesota Extension offers a 16-page guide to composting and mulching: [extension.umn.edu/distribution/horticulture/DG3296.html](http://extension.umn.edu/distribution/horticulture/DG3296.html).
- The University of Missouri Extension offers an illustrated Q&A on composting and mulching: [extension.missouri.edu/p/G6958](http://extension.missouri.edu/p/G6958).
- Store-bought compost bins are easy to find, but if you want to make your own, take a look at [CompostBinPlans.com](http://CompostBinPlans.com) and [backyardspaces.com/compostbin.html](http://backyardspaces.com/compostbin.html).

Jim Motavalli writes regularly about green products for The New York Times, National Public Radio and [thedailygreen.com](http://thedailygreen.com). Opinions are the author's and not those of Environmental Defense Fund.

# CAN ECONOMISTS SAVE THE PLANET?



Tim Connor

EDF's Gernot Wagner and his son, Annan.

Gernot Wagner has done something remarkable. The Harvard-trained economist, age 31, has written an *enjoyable* book about the economics of global warming. He's even included cartoons.

"Scientists can tell us how bad it will get," Wagner writes in *But Will the Planet Notice?* published by Hill and Wang. But it's the economists who can "help guide us out of this morass and save the planet."

Recently, *Solutions* sat down with the author to talk about his work.

*Polls show that climate change ranks low among Americans' concerns these days. So why write this book?*

Because it is possibly the most important issue facing the world, and it has to get back on the agenda. Also, for too long, environmentalists have told people that if only they recycle and buy local produce, they can stop global warming.

Sadly, that's not so. And talk like that may even have contributed to the public's current disillusionment. If everyone did the right things tomorrow, it would slow global warming, but not stop it.

*So what will stop it?*

The answer is rooted in policy—in making it in people's self-interest to do the right things. Every ton of carbon emissions causes around \$20 of damage—that's the price of global warming. But polluters pay virtually none of that cost. When I fly across the country and emit one ton of carbon, the ticket price does not reflect the damage the airline and I are doing to the planet.

So, we need policies that essentially make everyone who pollutes—be it the airline, a company or a person—pay for that privilege. The economics are simple.

*How will that solve the problem?*

When polluters pay, they'll think twice about polluting. More importantly, when

becoming greener profits you personally, that's what you'll do. And that's where companies will put their money and innovative energy. A price on carbon emissions above a certain level, a cap, will drive costly pollution out of the marketplace.

*What do the economists at EDF do?*

We work to ensure that EDF's work has the biggest possible impact in the marketplace—to make the planet notice, if you will. The same ideas we are applying to global warming, for example, were instrumental in helping the country to cut acid rain. They also brought some of our commercial fisheries back from the brink of extinction.

*You recently became a father. Did that change the way you view your work?*

Absolutely. I always found it a bit trite when environmentalists talked about leaving a better planet for their children. But that's exactly what I think about when I come home at night and look at my son in the crib. It's also what gets me out of bed in the morning.

> Learn more about Gernot Wagner's book, and read his blog, at [maketheplanetnotice.com](http://maketheplanetnotice.com)



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## Helping China meet its ambitious environmental targets

*One generation plants the trees, another gets the shade.* So goes a Chinese proverb. Since 1991, EDF has been planting the seeds of environmental progress in China and now, a new generation is enjoying the shade as the country embraces the promise of a cleaner environment.

EDF has worked with the Chinese government to build environmental markets, helping them implement a sulfur dioxide-trading pilot program. China's new five-year economic plan, announced in March, commits the country to creating pilot carbon emissions trading projects in three provinces.

We have also helped link carbon markets to China's poverty alleviation goals. EDF has assisted some 400,000 poor farmers in Xinjiang, Sichuan and Shaanxi provinces who are paid for reducing carbon emissions by improving agricultural practices and turning waste to energy, a win-win for the farmers and for the global environment. Our goal, by 2016, is to enroll 20 million



EDF is linking carbon markets to China's poverty alleviation goals.

farmers to reduce carbon emissions.

EDF is also helping China train a new generation of environmental officials and strengthen penalties for violations. Dr. Daniel Dudek, who directs EDF's China program, helped set tougher penalties for water pollution. The country is now considering similar improvements in air pollution penalties.

Dudek was recently appointed co-chair of a government task force that will study the environmental results of the previous five-year plan and recommend strategies to Premier Wen Jiabao for meeting the ambitious targets set by the current plan.

## Using wetlands for water treatment

A few years ago a reservoir that supplies drinking water to Bloomington, IL, tested high for nitrates, which in high doses can cause "blue baby syndrome" and other health problems. The nitrates came largely from fertilizers used on farms upstream.

Bloomington officials had a choice: spend millions upgrading their water treatment plant, or try a cheaper, more comprehensive approach called "nitrate-reducing wetlands." With the assistance of EDF and partners, they chose the latter.

We're helping create a number of

new wetlands to filter nitrates from water that drains from farms into Bloomington's water supply. By removing up to 50% of nitrates, the Mackinaw River Drinking Watersheds Project will also benefit wildlife and the Gulf of Mexico, where nitrogen from farms and cities along the Mississippi River creates an oxygen-starved 'dead zone' the size of New Jersey.

"This project makes great sense for Bloomington," says EDF consultant Terry Noto. "We hope it inspires other communities with similar situations."

## One California sushi roll, hold the methane

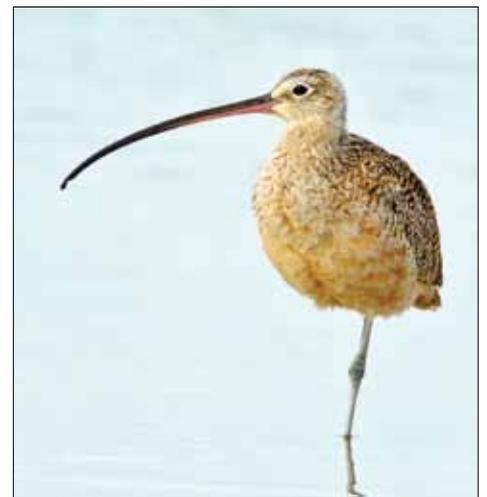
Rice helps feed half the world's people, but growing it produces methane, a potent greenhouse gas. To reduce emissions, but not yields, EDF teamed up with the California Rice Commission and farmers in the Sacramento Valley, where a half million acres are planted with rice. The partnership yielded a model for growing this staple in a more climate-friendly way.

Rice fields are flooded much of the year, which starts the process that produces methane. Draining winter fields could stop that. But rice ponds also provide habitat for 200,000 shorebirds and millions of migrating waterfowl along the Pacific Flyway.

Preliminary results showed that winter flooding can be reduced while still preserving critical habitat. That, plus changing seeding practices, would lower emissions by an estimated 11%.

We're now extending the project to Arkansas, the nation's top rice-producing region, and developing a template for other rice-producing states such as Louisiana, Texas, Missouri and Mississippi. EDF has similar projects underway in China, India and Vietnam.

"Rice is one of the world's biggest crops," says EDF's Belinda Morris, the project's director. "Growing lower-methane rice can put a real dent in global warming."



With the disappearance of wetlands, the long-billed curlew depends on rice ponds.

## New air pollution rule will save up to 34,000 lives a year



Both people and ecosystems will thrive under the new rule.

EDF scored a major victory over air pollution this summer, when the Obama administration announced a new rule to slash emissions from coal-burning plants in 27 Eastern states. EDF was instrumental in both securing the new rule, in part through the work of our North Carolina office, and defending it in court.

The Cross-State Air Pollution Rule tightens the amount of sulfur dioxide and

nitrogen pollution that coal-burning plants in the 27 states can release. The pollution drifts across state borders and contributes to dangerous particulate pollution, smog and acid rain.

Over the next three years, power plants in the states will need to cut sulfur dioxide emissions—the prime cause of acid rain—73%, and nitrogen oxides 54%. Starting in 2014, the rule will save up to 34,000 lives and prevent 19,000 in hospital and emergency room visits each year.

Industry lobbyists and their allies in Congress are mounting a furious counterattack to delay the rule's date of inception from January 2012 to at least 2013. EDF is responding with a strong lobbying campaign, and we are coordinating our efforts with electric utilities that support the clean air rules.

## Recognition for a vast undersea forest

EDF was honored when the South Atlantic fishery council recently won an award for safeguarding one of the largest deepwater coral systems in the world off the southeast U.S. coast. Our chief oceans scientist, Dr. Douglas Rader, led the decade-long effort to protect this 25,000-square-mile deep-sea forest.



Coral flowers are part of an ancient ecosystem off Florida, Georgia and the Carolinas.

## EDF takes on 'greenwashing' airlines

**Question:** Why would in-flight magazines refuse ads from EDF?

**Answer:** Because the ads call out the airlines for environmental hypocrisy.

In July, United/Continental and American Airlines filed suit against a European Union law that seeks to reduce greenhouse gas emissions from international flights that land in European airports.

The airlines claimed that the law violates U.S. sovereignty. And John Mica (R-FL), chairman of the House Transportation and Infrastructure Committee, even introduced legislation to make it illegal for U.S. airlines to adhere to it.

In fact, even while fighting the EU's sensible initiative, American claimed in its in-flight magazine that it was "identifying and implementing programs to reduce our environmental impact." And United/Continental launched an "Eco-

Skies" campaign to promote "the environmental commitment of our combined company."

"We should hold the airlines accountable," EDF president Fred Krupp said. "If it gets hot enough, they might stand down."

So EDF came up with its own ad and tried to place it in the in-flight magazines of the litigious airlines. They refused our money. We ran the ad in *Politico*, the influential Washington daily, and the story of the airlines' hypocrisy was picked up by a number of media outlets.

Meanwhile, EDF has joined six EU nations to defend the new law. "It's time to start the real work of reducing the airline industry's greenhouse gas pollution," says Pamela Campos, EDF's lawyer on the case.



Airlines claim to be green, but they are fighting new emissions standards for international flights.

# THE ROAD TO FUEL ECONOMY

## Big win for EDF and clean air

For decades, U.S. automakers used scare tactics to block higher mileage requirements, claiming that stricter fuel standards would limit their ability to sell the cars Americans wanted to buy. Today's 27.5 miles per gallon standard is a vast improvement over the bad old days, but still classifies our cars as guzzlers compared to foreign models.

After years of losing market share to more efficient imports, U.S. manufacturers finally dropped their opposition. In late July, automakers and the federal government agreed to require an average of 54.5 miles per gallon by 2025. Then in August, the Obama administration announced strong standards for trucks and buses. It's the first major mileage revision since 1975.

EDF played a critical role in both victories: Our work with FedEx spurred development of the technology needed to build more efficient trucks, and we helped pass the 2002 California law that led directly to the strong new auto standards.



In the wake of the 1973 Arab oil embargo, Congress enacts the first fuel economy requirements for cars.



Toyota introduces the high-mileage Prius into the American market, with brakes that help recharge the car's battery. The car is a hit with consumers.



2002

EDF vigorously supports California's new Clean Cars law. Fourteen states follow California's lead. EDF successfully defends the law in court against a challenge by automakers.



2010

EDF works to make California's auto standards national policy.



President Obama issues the first-ever fuel economy standards for trucks and buses, requiring trucks to reduce emissions and fuel use 20% by 2014. He also issues a rule for car fleets requiring them to achieve 54.5 miles per gallon by 2025.



Cars like this BMW i3, using off-the-shelf technology like small engine turbocharging, direct injection and cylinder deactivation, will help achieve fuel economy standards.



To meet 2025's steep mileage and emissions standards, vehicles will be highly aerodynamic. The Mercedes-Benz Biome concept car is made of materials that are biodegradable, lighter than plastic and stronger than steel.

