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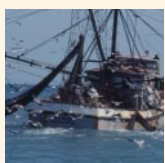
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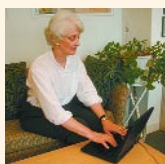
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China commits to reducing air pollution

BEIJING EMBRACES OUR EMISSIONS TRADING STRATEGY

Last April, a massive dust storm swept eastward across the Gobi Desert, sending China's industrial air pollution clear across the Pacific. Haze stretching from Texas to Canada was a powerful reminder that pollution transcends national boundaries. As one Chinese official put it, pollution needs no visa.

China's rapid economic growth has taken a toll on air quality. Beijing has an anti-pollution policy that calls for a 10% reduction in sulfur dioxide (SO₂) emissions, a major cause of acid rain, by 2005. But the government lacks mechanisms to implement the policy.

To help China battle acid rain, our economist Dr. Daniel Dudek is working closely with Chinese experts, local municipalities and the central government. Last year, we brought Chinese officials to the United States to observe firsthand how emissions trading mechanisms in the 1990 Clean Air Act resulted in dramatic reductions in U.S. sulfur emissions.

Following the visit, China launched a new project with us and the country's largest power generator, State Power of China. Beijing's top environmental official, Xie Zhenhua, then announced the government's intention to implement emissions trading in designated SO₂ control zones.

This new initia-

tive builds on our earlier projects in two industrial cities, Benxi and Nantong. In Benxi, we teamed up with city officials to draft tougher air pollution legislation based on the U.S. acid rain model. And in Nantong, we developed a demonstration SO₂ trade whereby a light manufacturer can expand operations in exchange for contributing funds for pollution control to a local power plant.

"A remarkable transformation is occurring in China," says Dudek. "Emissions trading will allow the Chinese to continue economic growth while meeting national pollution limits." China and the U.S. are the only two countries to explicitly cap sulfur emissions. The trading programs for sulfur that we introduced could also be applied to such greenhouse gases as carbon dioxide.

Emissions trading: Why it works

See box opposite page 5



Working with local municipalities and the central government, we helped China combat acid rain in rural areas by developing demonstration emissions trading programs.



A moment of silence

Like other institutions based in New York, Environmental Defense was profoundly shaken by the events of September 11. The World Trade Center horrors unfolded outside our windows and many with whom we shared our mission have been lost. The firm Cantor Fitzgerald, a key ally in efforts to reduce air pollution, was particularly devastated.

As we all struggle to come to grips with the tragedy, we seek to regain focus on the priorities we have set for our lives. At Environmental Defense, we paused to ask whether our efforts continue

Why the environment matters

to be important. We concluded that our work is as vital as ever.

Given the country's necessary focus on security, environmental issues may be less visible on America's agenda in the near term. But whether or not our issues are on the front page, the importance of protecting biodiversity, climate, oceans and human health is undiminished.

Our job as environmentalists is to preserve a world worth defending. We will continue to work with business, government and communities to find solutions, an approach that enjoys broad public support and bipartisan backing. Liberty needs pure soil, clean air and fresh water to thrive.

—Fred Krupp



Mark Austin-Washburn

Feeling overstuffed this holiday?

'Tis the season for greener catalogs

A MAJOR CATALOG RETAILER JOINS OUR CAMPAIGN TO REDUCE WASTE AND USE RECYCLED PAPER

As America's mailboxes fill up with the annual avalanche of catalogs, our Alliance for Environmental Innovation is helping the catalog industry reduce its environmental impact.

The Boston-based Alliance teamed with Norm Thompson Outfitters, a major catalog retailer based in Hillsboro, OR, to prove the case for switching to recycled paper. The company is now using paper with 10% post-consumer recycled content—the highest level widely available for coated stock—in all its catalogs. “By using recycled paper, we can reduce our burden on the environment without harming profitability,” said Rebecca L. Jewett, president of Norm Thompson Outfitters.

There's plenty of room for improvement in the catalog industry. Catalog circulation topped 19 billion in 2000, consuming 3.6 million tons of paper, nearly 13 percent of all printing and writing paper produced in the United States. Manufacturing and disposing of that much paper generates significant levels of pollution, waste and greenhouse gases. Our 1999 survey, *Greener Catalogs*, found that the catalog industry used virtually no recycled paper. “We felt this was unac-

ceptable,” said Gwen Ruta, director of the Alliance.

But switching to recycled paper has been a scary thought for many catalog companies. A decade ago, recycled paper quality was uneven and skyrocketing paper prices in the mid-1990s put recycled stock out of reach for most buyers. But technological advances have made recycled paper as dependable as virgin paper and price premiums have narrowed or disappeared.

NO LOSS IN QUALITY

During a year of research and testing with Norm Thompson Outfitters, we found that recycled catalog paper is widely available at competitive prices, prints just as well as virgin stock and has no impact on customer response. “We see no reason why 10 percent post-consumer recycled content cannot become the new industry standard for catalog paper,” said Victoria Mills, the Alliance project manager. “Eventually we can reach even higher recycled levels, but changing people's perceptions and building demand takes time.” The project was funded by The Pew Charitable Trusts.

We're now advancing our partnership to convince other catalogers to use recycled paper. Norm Thompson Outfitters and the Alliance recently presented our findings to some of America's largest catalog companies at a Direct Marketing Association conference and found a receptive audience.

Getting the industry on board is the key to multiplying the environmental benefits. Norm Thompson Outfitters' move to recycled paper will reduce wood consumption by 4,350 tons and greenhouse gas emissions by 2,040 tons per year. If all catalogers were to make the same switch, the industry would use 850,000 fewer tons of wood and decrease its emissions of greenhouse gases by 500,000 tons per year.

Our catalog partner is joining us as a catalyst for change. "With sustained demand, we can build a strong, stable market for recycled paper well into the future," said Steve Jones, vice president of marketing for Norm Thompson Outfitters.

Create a legacy for the future



By planning ahead when writing your will, you can ensure that the eventual distribution of your estate reflects your wishes and protects those you care about most.

You can perpetuate your commitment to the environment through a bequest to Environmental Defense. For further information, please contact:

Anne B. Doyle
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257 Park Avenue South
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1-877-677-7397



Paul Boisvert

Unless every region does its part, the climate of New England could become more like that of Georgia. One casualty could be Vermont's maple syrup industry.

Global warming's bitter harvest

Forrest Bartlett can vividly recall the days when he gathered sap in buckets and transported maple syrup by horse-drawn wagon. His family has been sugaring on his South Pomfret, VT, farm for three generations but "the sap doesn't run like it used to," says the 63-year old Bartlett. "If warming trends continue, Vermont's sugaring industry will dry up."

Bartlett's recollections of colder winters past are borne out in a recent regional study on global warming. Published as part of a national climate assessment, *Preparing for a Changing Climate* concludes that New England temperatures could rise six to 10 degrees on average by the end of this century, profoundly changing the region's way of life. Warming of this magnitude would harm New England's ski industry, cause coastal flooding and transform Boston's climate to that of a Southern city like Richmond or Atlanta.

"This intensive four-year study brings home the potential impacts of global warming for the people of New England," says our scientist Dr.

Janine Bloomfield. "Greenhouse gas emissions must be reduced immediately in New England to help avert the worst of the damage projected in this study."

Growing scientific consensus prompted the New England Governors' Conference to announce a climate action plan this fall that would lead the way by reducing regional public-sector greenhouse emissions to 1990 levels over the next ten years. Governments can achieve their target by improving energy efficiency in state buildings, expanding mass transit and adding gasoline-electric hybrid vehicles to their fleets.

To inform the public about climate change in the region, Environmental Defense helped form the New England Science Center Collaborative, which brings together scientists and educators to develop programs and interactive exhibits for schools, museums and natural areas. "Helping the public understand the science behind global warming and how we can respond is a critical step toward sound policy," notes Bloomfield.

Good news from Gulf waters

This summer, about 600 newly hatched Kemp's ridley sea turtles on South Texas beaches began a perilous march to the sea. The odds for survival for the two-inch hatchlings are thin. During the last century, Kemp's ridley populations plummeted because adult turtles and their eggs were harvested for human consumption. Poaching has declined, but the endangered turtles now suffer from entanglement and drowning in shrimp trawl nets.

With help from Environmental Defense, the Texas Parks and Wildlife Commission last December implemented better protections for sea turtles by moving shrimp boats to deep water during the turtle mating and nesting season.

Early results are extremely encouraging. The number of nests found at major turtle nesting sites in northern Mexico has increased dramatically, and turtle deaths from entanglement in nets are down nearly 20% this year.

Meanwhile, the Gulf shrimp catch has remained strong with some shrimpers reporting their best catches in a decade. The conservation measures can benefit the \$600 million shrimp industry by allowing juvenile shrimp in protected shallow waters to spawn and grow larger.

"It's too early to draw conclusions," says our fisheries biologist Pamela Baker, who helped write the new rules. "But initial indications are that the new protections will help the shrimp industry and sea turtles prosper together."



Jim Markham

New regulations help both turtles and fishermen.



Zach Willey

Embarking on the first-ever study of methane pollution from dams.

Study shows hydropower is not pollution-free

Boaters venturing onto Western reservoirs this September could be excused for thinking that the bizarre plexiglass containers floating on the reservoirs were space-age fish traps.

The boxes are a key component in a new global warming study by Environmental Defense. Researchers we hired have measured, for the first time, emissions of the potent greenhouse gas methane from a sampling of U.S. dams. Their findings could alter the map of greenhouse gas sources in the United States and refute claims by the hydroelectric industry that dams provide pollution-free energy.

About 10% of U.S. greenhouse gas emissions

come from methane, which is released when organic matter breaks down. But official figures have not included methane emissions from dams because they had never been measured. Our economist Zach Willey, who initiated the project, estimates that including dams could increase U.S. methane emissions by as much as 20%. We plan to use our findings to convince policymakers about dams' contribution to global warming. "This is the first snapshot of the impact of dams on climate," said Willey.

The researchers, a team of experts from Toronto, allowed gases from the water to seep into the containers and then measured the methane inside with a gas chromatograph.

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Getting to yes: Keeping the Kyoto Protocol on track

ENVIRONMENTAL DEFENSE AND RUSSIA SEARCH FOR BENEFITS AT HOME AND ABROAD

Solving international problems requires extraordinary cooperation among nations. That spirit of unity surfaced this summer in Bonn when 178 countries breathed new life into the Kyoto Protocol to reduce global warming.

To take effect, the protocol must be ratified by 55 countries representing 55% of the industrialized world's 1990 carbon dioxide emissions. The U.S., which sat on the sidelines during the Bonn negotiations, was the top emitter in 1990; Russia was second. "With the U.S. out of the picture, Russia's role is critical," says our attorney Ram Uppuluri.

Environmental Defense has worked with Russian partners to improve greenhouse gas management for a decade. Now our efforts are paying off.

The Bonn accord includes an emissions-trading system we pioneered, giving countries the flexibility to achieve their emissions reductions at lowest cost. Russia's emissions, after years of economic crisis, are below its Kyoto target, meaning that Russia can sell allowances in the emerging carbon market. But Russia could also sell electricity, generating more pollution, and hold its allowances to cover the resulting emissions increase.

Seeking to generate electricity without increasing emissions, Moscow has



Arthur Cummings/Sovfoto/Eastfoto

Russia knows what is spewing from this plant. The challenge now is to reduce it.

pledged to channel revenue from emissions trading into more efficient power generation. But critics have questioned the credibility of Russia's emissions reporting. To address these concerns, we proposed to conduct the first-ever independent review of the emissions inventory of Russia's largest electric utility. The giant utility, impressed by our success in helping the energy company BP monitor its emissions, agreed to let us review its emissions books.

"It turns out the company's inventory is quite good," says our economist Dr. Alexander Golub, who directed the study. "What Russia lacks are institutions and capital to implement pollution reductions." Several Russian regions have followed suit and are conducting emissions inventories. "Accurately measuring emissions is critical for compliance with any reduction program," says Golub.

THE POWER OF THE MARKET

The next step is for Russia to ratify the treaty. To that end, Golub addressed members of Russia's parliament, the Duma, this summer. Deputies responded positively as he outlined the major human health benefits from reducing power-plant emissions. A recent study co-authored by Golub concludes that greenhouse-gas reductions could simultaneous-

ly reduce sulfur dioxide and nitrogen oxides and save up to 35,000 lives a year.

As the Duma moves toward ratifying the Kyoto Protocol, Russia is warming up to market approaches. In August, we conducted a workshop on market solutions in Moscow with 20 organizations. "Five years ago, few people supported market-based instruments in Russia," says Golub. "Now, support is very broad." These initiatives may encourage the Russian government to take a leadership role in the next global climate talks.

"Our work with Russia will also help keep the door open for the U.S. to participate," says our international counsel Annie Petsonk. "The U.S. has advocated market solutions for climate problems since the first Bush administration." We also continue to press Congress to pass legislation capping greenhouse emissions.



Sovfoto/Eastfoto

What future will Russia's children inherit?



Peter Klebnikov

Global warming could make flooding the norm on St. Petersburg's Palace Square.

The sensible shopper

These organizations explore the environmental and other implications of doing business online. For more resources and useful information, visit www.environmentaldefense.org/more/10547.

The Center for Energy and Climate Solutions promotes financial and environmental advantages of clean technologies, including the Internet. 7010 Little River Turnpike, Suite 460, Annandale, VA 20003; (703) 750-7880.

INFORM, Inc., an independent research organization, examines the effects of business practices on the environment and human health. 120 Wall Street, 16th Floor, New York, NY 10005; (212) 361-2400.

Tellus Institute examines business practices and sustainability and recently ran a conference on e-commerce and the environment. 11 Arlington Street, Boston, MA 02116; (617) 266-5400.

HOW TO GET LESS MAIL

To remove your name and address from many mailing lists at once, write: Direct Marketing Association, Mail Preference Service, P.O. Box 9008, Farmingdale, NY 11735; (212) 768-7277. State your name and address and any variations.

To stop receiving a particular catalog, call the toll-free number in the catalog and ask that your listing(s) be removed. Many companies will also honor requests to send catalogs less frequently, and some may let you switch from paper catalogs to e-mail offers.



JimWest

Far from the madding mall: A shopper's alternative.

How green is e-commerce?

SHOPPING ONLINE CAN HELP PRESERVE THE ENVIRONMENT

It's 10 p.m., the kids are in bed and the stores are closed, but you can still go shopping on your computer. Selling over the Internet has become big business. Transactions by the approximately 170 million people who use computers worldwide are expected to total \$1.4 trillion by 2003.

Shoppers making online purchases don't need to drive their cars to the mall. Other environmental benefits of e-commerce, however, aren't as clear. One study concludes that online bookseller Amazon.com uses 16 times less energy per square foot than a conventional retailer. But other research finds that when customers request overnight shipping of products, the use of air freight cancels out the energy savings and may actually be worse for the environment. Buying over the Internet also leads to a huge increase in cardboard boxes and packing peanuts, which few consumers recycle.

What online habits can help you

be a greener shopper?

Avoid the rush. Unless it's an emergency, don't check the "next-day air" box. The most environmentally appropriate option is three-to-seven-day delivery, which saves money, too.

Send gifts direct. Save time and energy by having the online retailer send your gift directly to the recipient. Many e-commerce sites custom-wrap and include your words on a card to personalize this option.

Reduce and reuse. Shop carefully so you won't have to send back purchases you don't want, negating the environmental savings. Try to reuse or recycle the packaging you receive.

Download your purchase. If you're buying software or music, you may have the option to download your purchase rather than have it shipped to you. You'll avoid the waste that comes from manufacturing, packaging and transporting your purchase.

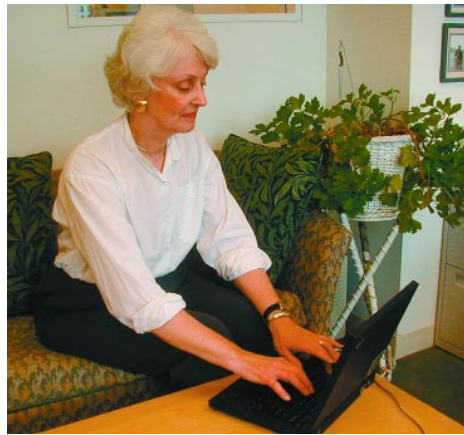
E-mail digital photos. Some 70%

This guest article is one of a series by the editors of E/The Environmental Magazine (for subscription information: 800-967-6572 or www.emagazine.com). Opinions are the author's and not necessarily those of Environmental Defense staff.

of amateur photographers now e-mail electronic snapshots, often using digital photography web sites such as Shutterfly.com, rather than ordering prints from chemically intensive photo labs.

Use online directories. Locating and paying for items online can cut down substantially on paper and mailing costs. Using online telephone directories will eventually reduce the need for phone books, which consume 470,000 tons of paper a year, only 10% of which gets recycled.

Cancel paper catalogs. Online catalogs and product galleries can cut down on direct-mail waste. Last year, more than 19 billion catalogs were mailed. But



Tim Connor

Environmentally preferable products are as close as your computer.

remember, consumers need to take the initiative to cancel their own catalog subscriptions (*see box at left*).

Opt for electronic billing. Many utilities, banks, credit card issuers and other companies now give customers the option to receive monthly bills electronically. You'll save postage and eliminate the use of paper and envelopes going back and forth.

Look for greener products. It's not just how you shop that makes a difference; it's also what you shop for. No matter where you live, environmentally preferable products are as close as your computer. Web sites like EcoMall.com and GreenMarketplace.com have everything from organic cotton clothing to solar electricity systems.

By Jim Motavalli

Farmed fish and the environment: a mixed verdict

If you're buying farm-raised fish in the hope of helping ocean fisheries recover, you'd better take a closer look, according to a new report that Environmental Defense staff helped produce.

Farmed fish aren't necessarily better for the environment than wild fish, the report concludes. Producing one pound of farm-raised salmon or shrimp, for example, requires two to three pounds of wild fish for feed. The waste from fish farms can also pollute coastal waters. Fish farming, or aquaculture, accounts for one third of the world's seafood, including nearly all the catfish and trout and almost half the shrimp and salmon consumed in the United States.

Entitled, *Marine Aquaculture in the United States: Environmental Impacts and Policy Options*, the report was published by the Pew Oceans Commission and authored by Dr. Rebecca Goldberg and Matthew Elliott of Environmental Defense and Dr. Rosamond Naylor of Stanford University.

The United States alone has more than 4,000 aquaculture facilities. "Aquaculture is here to stay," says Goldberg. "The challenge is to ensure that the industry grows in a sustainable manner." A spate of mishaps in Maine underlines the need for change. Last winter a storm released large numbers of farmed salmon into the ocean, threatening endangered wild salmon populations through competition and interbreeding. More recently, a disease that wreaked havoc among the state's pen-raised salmon threatened to spread to wild salmon.



AP/Amelia Kunhardt

Salmon farms may spread disease, threatening wild populations.

The report calls for:

- Stronger measures to prevent accidental escapes or releases of farmed fish.
- Reduction in the use of wild fish for fish feed.
- Standards for discharges of fish farm wastes.

Prospects for implementing our recommendations are promising, says Leon Panetta, chair of the Pew Oceans Commission and former White House chief of staff. "In discussions with members of Congress, we have heard a willingness to enact such improvements," says Panetta.

More on the web. For an online version of the report, plus our *Seafood Solutions* guide to sustainably harvested fish, visit www.environmentaldefense.org/more/10548

Can pictures save the wild world?

NEW BOOK PRESENTS A SPECTACULAR PORTRAIT OF HAWAII'S VANISHING SPECIES

Far from tourist hotels and parasol-drink bars, a true paradise is being lost in Hawaii. The islands are home to a rich array of rare plants and animals now under assault from invasive species and uncontrolled development.

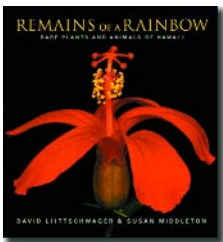


Hank Oppenheimer

The artists at work on Mauna Kahalawai.

These endangered plants and animals are the subject of a breathtaking new book by award-winning photographers David Liittschwager and Susan Middleton. The book, *Remains of a Rainbow: Rare Plants and Animals of Hawaii*, was commissioned by Environmental Defense and published by National Geographic. It's part of our continuing collaboration with the photographers to help the public see the extraordinary beauty of endangered species and understand the urgent need to protect them.

Remains of a Rainbow offers what



Now available in bookstores, *Remains of a Rainbow* offers the first comprehensive look at Hawaii's endangered species.

The New York Times calls a “starkly intimate look” at the 140 species native to the volcanic islands.

Home to a quarter of the species on the U.S. endangered list, “Hawaii has the unfortunate distinction of being the endangered species capital of the world,” says Middleton. Some species in the book are new to science or previously were thought to be extinct. A three-year national travelling exhibition of the photographs debuts this fall at the Honolulu Academy of Arts.

The fragility of Hawaii's ecosystem lent urgency to our work with local Hawaiian activists. This year, we helped win approval of the Northwest Hawaiian Islands Coral Reef Ecosystem Reserve, a sanctuary encompassing 70% of U.S. coral reefs that is home to many endangered animals, including the Hawaiian monk seal.

In preparing their book, Liittschwager and Middleton ventured into remote habitats, trekking just below the rim of Kalalau Valley to photograph one of three remaining trees of *Tetraplasandra flynni*. They ascended 13,500 feet to the summit of Mauna Kea, capturing images of rare alpine insects like the big-eyed hunting spider. To photograph Hawaii's rare fish they accom-



©David Liittschwager/Susan Middleton

Stenogobius Hawaiiensis: This rare freshwater fish's stream habitat is under siege.

panied biologists to collect specimens that later were returned to the wild.

Liittschwager says, “It is a common assumption that our natural world has been thoroughly explored. But there is still much to be discovered. Hawaii is a kind of biological frontier.”



©David Liittschwager/Susan Middleton

High in the rain-laden trade winds, this mountaintop bog shelters rare and beautiful plants like the threatened silversword.



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finding the ways that work

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