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## A wake-up call from the Arctic IN THE FUTURE, WILL THE POLAR EXPRESS TAKE YOU TO A TEMPERATE ZONE?

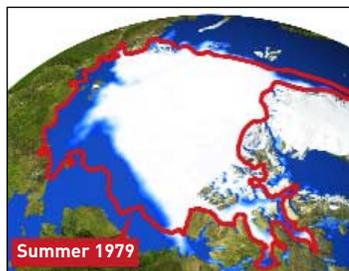
Nineteenth-century explorer Fridtjof Nansen called the Arctic "nature's great ice temple." The itinerant scientist described encounters with polar bears and a forbidding landscape frozen since "the earliest dawn of time."

Today, it seems one cannot go far enough north to escape global warming. Based on research by 300 scientists, the Arctic Council reports that the region has warmed twice as fast as the rest of the globe over the past 50 years. Snow cover has diminished and the permafrost underlying the tundra has become less stable. Indigenous hunters are falling through thinning ice and prey from seals to whales is harder to find.

A separate study published in *Nature* concluded that human activity has doubled the risk of heat waves like the one in 2003 that killed tens of thou-

sands in Europe.

"It's uncertain exactly what will happen over the next 20 years," says Environ-



Arctic Ocean ice has shrunk by as much as 20% since 1979.

Courtesy NRDC

mental Defense chief scientist Dr. William Chameides, "but that should not be used as an excuse for inaction. The longer we wait to act, the more expensive and difficult the remedy is likely to be."

"If Arctic warming trends continue," he adds, "the consequences may be far-reaching and devastating." They range from undermining the viability of traditional Arctic peoples and boreal ecosystems to accelerating sea-level rise, in turn threatening coastal communities in Florida and elsewhere.

With the Kyoto treaty taking effect next month, the industrialized world, minus the United States, has committed to cut heat-trapping emissions. This spring Congress is likely to take up a

domestic plan to cut such pollution, the McCain-Lieberman Climate Stewardship Act. "The environmental community is unified in support of this bill," says Environmental Defense president Fred Krupp, who is helping move the legislation forward.



Thomas Mangelsen/Minden Pictures

Some 23,000 polar bears roam the Arctic today. By 2100, loss of sea ice could wipe them out.

Please see  
Cover Story, p. 2

## Protecting the environment is a bedrock value



Astronaut Rusty Schweikart once described looking homeward from space: "You see the Earth as a bright blue and white Christmas ornament ... so

small and so fragile. And you realize that everything that means anything to you is on that little spot out there that you can cover with your thumb."

Most people have felt that reverence toward the Earth. They believe the natural world is sacred, whether that belief is infused with God or with a sense of mystery and awe. Protecting the Earth is a bedrock value on which so many other principles depend.

In recent months, religious lead-

ers serving 100 million Americans—Baptist, Catholic, Episcopal, Evangelical Christian, Greek Orthodox, Jewish, Lutheran, Methodist and Presbyterian—joined eminent scientists to support the McCain-Lieberman Climate Stewardship Act. They declared, "Climate change presents an unprecedented threat to the integrity of life and a challenge to universal values."

### Red and blue states alike approved environmental measures.

An editorial in *Christianity Today*, a magazine founded by Billy Graham, noted that climate change may "disproportionately impact the poor" and called for preventing disasters by making clear

"that we're willing to adapt our lifestyles to protect our environment."

In the past election, voters in red and blue states alike approved three-quarters of all environmental ballot measures. As Paul Gorman, executive director of the National Religious Partnership for the Environment, says: "Shared moral values are the fertile ground of unlikely alliances."

Forty years ago, religious and secular ethicists together brought tremendous power to the civil rights movement. That same moral strength can be tapped today. From whichever well you draw your environmental values, share them with your neighbors and schools and churches. Life is worth protecting, and we can.

## COVER STORY: Time to heed the Arctic's warning

Continued from page 1

We also are collaborating with companies like DuPont, which since 1990 has reduced its global warming pollution by 65%, and states like Maine, which has adopted the first statewide goal to cut such pollution and is showing the way with state government purchases of renewable energy and hybrid vehicles.

### ARCTIC RESERVE AT RISK

Some in Congress, however, aren't getting the message. There is a renewed push, backed by the Bush administration, to open the Arctic National Wildlife Refuge to oil and gas exploration. Our nation's heavy dependence on fossil fuels exacerbates global warming. "There are

more cost-effective steps we could take without violating this pristine wilderness," points out Krupp.

Environmental Defense will defend the Arctic refuge on Capitol Hill and continue to work with congressional leaders to develop a national policy on global warming. "If we ignore the Arctic's warning, it's not only the polar

bears who will suffer," notes Chameides. "Our children and grandchildren could pay a hefty price."



What you can do: Demand that President Bush and Congress protect the Arctic National Wildlife Refuge from damaging oil drilling. Go to [www.environmentaldefense.org/action](http://www.environmentaldefense.org/action).

### Welcome our new chief scientist



"I started out as a climate skeptic," says Dr. William Chameides. "By nature, all scientists are skeptics." Over time, however, the evidence pointing to the human contribution to global warming swayed him. The Smithgall Chair of Earth and Atmospheric Sciences at Georgia Tech and

member of the National Academy of Sciences wanted to be more proactive and so decided to join Environmental Defense. As chief scientist, Chameides, who earned his Ph.D. from Yale in 1974, will continue to do research while overseeing the scientific content of our work. We're delighted to have him on board.



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# MAILBAG

## Editor:

I just read Fred Krupp's letter to President Bush (Nov.-Dec. *Solutions*), and I want to tell you how much I appreciated not just your message but your approach. I think the administration gets so much angry input about the environment; hopefully your generous tone will be more effective.

**Melissa S. Bahleda  
Jackson, SC**



Bancroft Library

## Editor:

Regarding your campaign to restore Hetch Hetchy Valley ("Paradise Regained?" (Sept.-Oct. *Solutions*). Can we really afford to put effort and money into a campaign to restore an ecosystem that was annihilated 80 years ago?

**Gloria McClain  
San Jose, CA**

## Our economic analyst Spreck Rosekrans responds:

San Francisco's plan to rethink and repair the region's water system gives us a once-in-a-lifetime opportunity to not only preserve what we have, but also restore what we have lost. A National Park Service study confirms that the valley's ecosystem would recover quickly if San Francisco decides to retire the reservoir. Far from diminishing other environmental campaigns, restoring a national treasure as significant as Hetch Hetchy could provide a rallying point for all Americans to recommit themselves to conservation.

PLEASE WRITE US!  
**See addresses at left.**

# Washington watch



## Damage control on Capitol Hill

With President Bush entering his second term and special interests targeting the new Congress, the coming political season could be a defining moment for environmental protection. Laws and regulations dealing with everything from endangered species to air pollution are likely to come under attack.

Environmental Defense will stand with our members and allies to fend off these assaults. We'll also continue working with both parties to gain new ground, including passage of the Climate Stewardship Act. Here's a look at some key battles:

### Energy bill

Given high energy prices, we expect an immediate push for energy legislation and a renewed effort to open the Arctic National Wildlife Refuge to drilling. This may be put forward during the budget reconciliation process in March. Environmental Defense will defend the refuge and fragile areas off California's coast, from drilling. We will promote renewable energy and fight the bill's massive subsidies for fossil fuels.

### Endangered Species Act

Rep. Richard Pombo (R-CA), chairman of the House Resources Committee, has

vowed to weaken vital wildlife protections in the Endangered Species Act. We will fight to keep the act's protections intact.

### Clean Air Act

Despite EPA statistics showing that 159 million Americans still breathe unhealthy air, Sen. James Inhofe (R-OK) plans to reintroduce a bill that would weaken the Clean Air Act. The so-called "Clear Skies" initiative, favored by the administration, would postpone deadlines for meeting health standards for harmful air pollutants and exempt hundreds of aging power plants from cleaning up when they expand. We will vigorously defend and enforce the nation's clean air laws.

### Transportation bill

Congress will take up a \$250 billion transportation bill that will have dramatic impacts on air and water. Unless we act fast, the bill will favor highways and sprawl over public transport and smart growth. We will fight for market-based approaches such as congestion pricing to reduce air pollution and traffic.



Tell your representatives in Congress to oppose the Clear Skies Initiative. Go to [www.environmentaldefense.org/action](http://www.environmentaldefense.org/action).



Billy E. Barnes/Photo Edit

Are we in for a return to the good ol' days?

## Fertile ground for fighting global warming

### THE CASE FOR CARBON SEQUESTRATION

Environmental Defense economist Dr. Zach Willey spends a lot of time hanging out in rural VFW halls, talking to people who don't usually think of themselves as environmentalists. Raised on his grandfather's farm, Willey knows how hard it is for these cotton and corn growers to scrape out a living. So he's helping them figure out how to make money on a new crop: carbon dioxide.

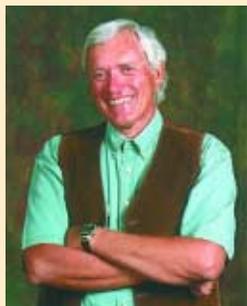
Carbon dioxide is the major air pollutant that causes global warming. It's emitted from smokestacks and tailpipes and when forests are burned or cleared. But this process also can run in reverse. When new forests grow, they remove carbon dioxide from the air and store or "sequester" it. The same is true of certain farming practices.

So while Washington, DC, fiddles, Kansas corn farmers, Louisiana cotton growers and Idaho foresters are leading the way on slowing global warming. By improving production practices (*see box, p. 5*), they're reducing their own greenhouse gas emissions and also sequestering tons of carbon in their soil and trees. With Willey's help, they're then selling those carbon credits to companies looking to offset their own emissions.

#### Homegrown solutions to global problems

Zach Willey was still a graduate student when he figured out that farming practices that harm ecosystems usually harm farmers' bank accounts, too. It was the 1960s, and pesticide salesmen were assuring California growers that their products offered the surest route to profits.

Willey spent years in Central Valley tomato fields and orange groves testing that proposition, ultimately demonstrating that farmers fared better by using biological pest controls, a change that has become the norm. Such patient analysis and advocacy on behalf of ecosystems—and the people who live from the land—have defined Willey's work ever since.



T. Charles Erickson



Terry W. Eggers/Corbis

Bring the carbon harvest home. Carbon dioxide can be stored in soil as well as trees.

So far, there are only a handful of buyers, most of them energy companies like Entergy and Cinergy, who are partnering with Environmental Defense to reduce emissions voluntarily. In countries that have ratified the Kyoto treaty, by contrast, a thriving market for carbon credits has emerged—although the treaty isn't yet crediting carbon sequestration.

#### RE-ENGAGING THE U.S.

Given the potential profits for American farmers and foresters, working out the rules for carbon sequestration credits could

be the best hope for re-engaging the U.S. in a global solution. It also would create powerful economic incentives to keep tropical forests standing. Right now, the burning and logging of tropical forests accounts for about 20% of global carbon dioxide emissions.

Knowing the importance of these issues, participating countries asked Environmental De-

fense to conduct a seminar on agriculture and forestry at the tenth annual meeting of the parties to the U.N. Framework on Climate Change, held in December in Buenos Aires.

Meanwhile, we're helping American farmers gain valuable experience through pilot projects around the country. The environmental, economic and even political promise of carbon sequestration is evident in our project with AgraMarke, a Kansas grain growers' marketing cooperative. By giving up their plows in favor of "no-till," these midwestern farmers are storing up to three-quarters of a ton of carbon dioxide per acre of soil each year.

Because untilled soil remains richer in nitrogen and requires less fertilizer, they're saving money on chemicals. More water stays in their soil, reducing erosion and improving downstream water quality, and less tractor time means fuel savings.

"Farmers want to protect their land. It's where we live," says AgraMarke EcoSystems CEO Daryll Jamvold. "But if we can't show our farmers the financial reward, they won't commit to long-term contracts. We didn't know how to put together a package that we could sell to a company, and Zach brought us that capability, and that was a tremendous help."

When Kansas farmers begin to make

money off this new commodity, it may even help sway their senators to vote for mandatory caps on carbon dioxide emissions, which would increase the value of carbon credits. “On the congressional side,” says Jamvold, “we need their support.”

To ensure that the carbon sequestered in forests and soils is accurately measured and accounted for, Environmental Defense is working with scientists to develop a field guide, due out

this year from Duke University Press, which will establish a “gold standard” for sequestration accounting.

The potential benefit to the atmosphere, as well as to ecosystems, is immense. U.S. forests and agricultural lands already soak up 246 million tons of carbon each year, 13% of U.S. greenhouse gas emissions. If new practices can increase this amount substantially, it could make a significant contribution toward undoing global warming.

## Use your retirement assets wisely

Retirement assets can be a wonderful way to protect the environment and receive tax benefits. By making Environmental Defense a beneficiary of your retirement plan, you can maximize your contribution while reducing your tax burden.



Because retirement plans are subject to estate and income taxes, your heirs may receive only 35 cents of each dollar you leave in your will. By designating us as the beneficiary of your retirement plan, you can reduce these taxes from your estate. For more information, please contact Anne Doyle, Environmental Defense, 257 Park Avenue South, New York, NY 10010, or call toll free 1-877-677-7397.

## Carbon sequestration—Even the salmon like it

By changing the way they work their lands, farmers and foresters can protect the atmosphere. They also can preserve wildlife habitat, reduce the use of chemical fertiliz-

ers, minimize the polluted runoff and odor from livestock and dairy operations, improve water quality and help save open space and family farms. Here’s how they do it:



### No-till agriculture:

Three hundred farmers working 500,000 acres in the Pacific Northwest are plowing less land; instead they “direct seed” and let stubble rot

in the field. Over time, this will keep up to 30 tons of carbon per acre in the soil.



### Taking carbon to market:

In 2002, Entergy, a power company, leased 30,000 tons of carbon credits from Northwest farmers. Envi-

ronmental Defense helped broker the deal and is now developing similar projects with Louisiana cotton farmers.



**Reforestation:** We’re helping the Nez Perce tribe in Idaho restore pine and fir cleared for agriculture in the 1800s. The trees capture carbon and also reduce soil erosion into streams, aiding native salmon.



### Methane capture:

Emitted from manure, methane has 31 times the climate impact of carbon dioxide. We’re helping Mississippi poultry farmers and

New York dairies collect methane and use it to generate electricity.

# Regional update

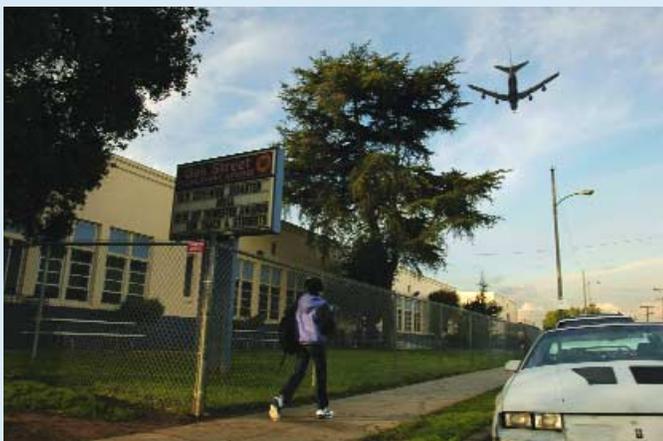
## Landmark airport deal will bring friendlier skies to L.A.

After months of negotiations that Environmental Defense helped lead, the Los Angeles International Airport (LAX) agreed to provide \$500 million worth of environmental and job benefits—the largest such deal ever brokered—to communities affected by a massive airport modernization plan.

As chair of the negotiating coalition's steering committee, our Los Angeles policy director Jerilyn Lopez Mendoza encouraged business leaders and representatives of 26 organizations, including school districts, labor unions and religious groups, to sit down together and buy into the final pact. "Environmental Defense came with the attitude that rather than being confrontational, we should solve problems," said Jim Ritchie, lead negotiator for Los Angeles World Airports, the government entity that operates LAX.

We also tapped our experts from around the country to win far-reaching pollution reductions at LAX, the second largest industrial smog source in the L.A. area. We crafted commitments to eliminate jet idling by electrifying all gates, and to reduce diesel pollution by retrofitting trucks and construction equipment with filters, mirroring our New York City retrofit program.

Earlier we helped craft a similar community benefits agreement (CBA) for the L.A. Staples Center expansion and now aim to replicate the model elsewhere, such as on 125th Street in Harlem. "By solving problems up front, CBAs benefit the developer, the community and the environment," said Mendoza.



The community benefits agreement includes funds to soundproof nearby schools.



Many of America's favorite fish spawn in North Carolina's rivers and tidal estuaries.

## North Carolina adopts plan to restore coastal habitat

Imagine a future where millions of river herring, striped bass and American shad again migrate upstream through North Carolina's tidal estuaries and cypress-clad coastal plain to spawn. That's part of the vision of the North Carolina Coastal Habitat Protection Plan, approved last month by the state's environmental agencies.

"With extensive stakeholder input, this plan represents a great step forward in reducing the threats that have depleted fish species, destroyed habitats and degraded water quality on our coast," said our marine scientist Dr. Michelle Duval, who shepherded the plan through the approval process. "It provides a clear roadmap for protecting and restoring North Carolina's fish habitats."

North Carolina waters provide spawning areas and nurseries for fish that end up from Cape Canaveral to Cape Cod and beyond. Many of these habitats, how-

ever, are threatened by development, pollution and agricultural runoff.

Fragmentation of authority among various state agencies has allowed many of these threats to slip through the cracks. To address this shortcoming, the state passed the 1997 Fisheries Reform Act, which our scientist Dr. Doug Rader helped draft,

### Initiative addresses impacts far upstream

that mandated the development of the new integrated coastal plan.

The state's rulemaking bodies are required to comply with the plan, which contains hundreds of specific recommendations for habitat protection. "This is one of the first ecosystem-based management plans for protecting the oceans," said Rader. "It serves as a model for other coastal states."

# Protecting a treasure along the Mayan Coast



Carl & Ann Purcell/Corbis

Loving it to death: Unlimited tourism can destroy fragile reefs.

In decades spent diving for spiny lobster off Mexico's Mayan Coast, Ismael Osorio Medina has seen plenty of mysterious creatures. Nothing prepared him, however, for the sight of a huge cruise ship disgorging tourists on his tiny subsistence-fishing village of Mahahual, in southern Yucatan.

Over the past three years, the reefs and beaches south of Cancun have seen the most intensive coastal development in the Caribbean. For the environment, the costs have been profound.

It was not supposed to be this way. Only recently, Mahahual was a village of 600, its coastline protected against excessive development under a sustainable tourism plan. Today, however, cruise ships spill out 20,000 visitors a week onto a "Mayan entertainment complex" and shopping mall. Mass violations of zoning laws have produced dozens of illegal structures, jet-ski rentals and nightclubs; a 1,000-foot pier has been built near spawning sites of Nassau grouper. "It's like sustainable tourism planning never happened," says Environmental Defense scientist Dr. Ken Lindeman.

Now Mexico's powerful FONATUR tourism agency plans to develop the final 100-mile stretch of virgin coastline from

Banco Chinchorro Biosphere Reserve. Almost every type of tropical organism in the Caribbean is found here, from sea turtles to queen conch. The cruise industry plans to use high speed-catamarans to bring 120 tourists a day to this fragile marine treasure.

## A SENSIBLE SOLUTION

With support from the Oak Foundation, Environmental Defense is protecting these irreplaceable resources. Working with local scientists, fishing cooperatives and lawyers, Lindeman and fellow scientist Dr. Tomas Camarena are designing policies to:

- Protect coral reefs and fisheries by limiting unsustainable coastal development.
- Improve the management of marine protected areas.
- Empower local citizens, agencies and academic institutions to protect their coastal resources.

"Local and regional groups are concerned," says Camarena, who used to manage the Banco Chinchorro reserve. "Cruise ships are the leading edge of rapid development. Operators find the most pristine reef around and instantly it's a city in the middle of nowhere." Many

local residents oppose cruise ship tourism, which undercuts zoning plans, generates mountains of garbage, overwhelms sewage facilities, and instantly changes centuries-old family-based lifestyles, while leaving scant profits for the locals.

## PROFITING FROM RESTRAINT

At Banco Chinchorro, we're helping determine a scientifically based maximum number of visitors to be permitted at the atoll. This will avoid the mass tourism that ruined Cancun's reefs. The work echoes our programs in Cuba and elsewhere, where marine resources are threatened by cruise ship tourism. "There is still time to limit the damage in the virgin places," notes Lindeman. "We want to show that tourism can benefit communities without damaging the environment."

Education is the first order of the day. Through workshops, agency oversight and handbooks created with organizations like the Mexican Center for Environmental Laws, we're building local support. "Our goal is to ensure that sustainable development principles are followed," says Camarena. "Too often, good laws are negated by negligence."



Humberto Bahena

At 560 square miles, Banco Chinchorro is the largest atoll in the Caribbean.

## Endangered songbird helps a ranch in Texas thrive



Greg W. Lasley

A black-capped vireo. “Landowners look at what we’re doing and call Environmental Defense to sign on,” says Fain.

**R**ickey Fain knew nothing about ranching when he traded his job as a family doctor in Dallas for 1,600 acres of worn-out land in the Texas hill coun-

try back in 1992. “I woke up the next morning thinking I’d had one too many glasses of wine,” recalled Fain.

Today, Fain’s Quail Ridge Ranch hosts a thriving native wildlife population, and hunters and nature tourists flock to his exclusive lodge.

How did he achieve the transformation? Partly thanks to an endangered songbird—the black-capped vireo. Our scientists visited Fain’s ranch and discovered he had prime habitat for the vireo, once common from Kansas to Mexico.

We offered Fain a plan to improve vireo habitat by clearing invasive cedar and conducting periodic burns to restore grasslands, which also benefits the native wildlife prized by hunters. Fain signed a

Safe Harbor agreement, letting him do the work without fear of added regulations, and we connected him to an array of government funds to enhance wildlife habitat.

“Environmental Defense was kind enough to come out. We sat down, we agreed to do things right. The quail, the deer, the turkeys, the vireo—everything benefited,” said Fain.

Today, 17 pairs of vireo nest on Fain’s ranch, and the land’s capacity for cattle has doubled. Word of Fain’s success has spread. He is now one of 47 landowners on 100,000 acres in Texas restoring habitat for the vireo. The Texas Farm Bureau and Central Texas Cattlemen’s Association have endorsed our efforts.

The work is part of our Back from the Brink campaign, which has enrolled landowners from New York to California. “It’s incredibly exciting,” says our ecosystems director Melinda Taylor. “All across the country we’re seeing a positive shift in landowners’ attitudes about endangered species.”

## In California, a river runs wild again

Thanks to a major victory in federal court, spring snowmelt on California’s Trinity River should help young salmon migrate to the Pacific Ocean this spring. And when they return in the fall



An alliance with Native Americans brings victory for the Trinity River.

of 2007, spawning habitat should be much improved.

Trinity Dam, built in the 1960s, allowed diversion of most of the river’s natural flow, annihilating salmon runs that local tribes had relied on for centuries. After 20 years of study, a joint tribal-federal plan to restore water to the river was signed in 2000. But the plan was blocked in court by subsidized water and power users, including cities.

The federal appeals court overruled a lower court decision and ordered the state to implement the restoration plan. This is crucial to improve conditions for migrating chinook and endangered coho salmon.

Environmental Defense was “critically important” in this victory, noted Tom Schlosser, the Hoopa Valley Tribe’s chief litigator. We also led an effort to convince the cities of Sacramento, Palo Alto and Alameda to withdraw from the case, weakening the opposition’s argument.

“This decision will let this spectacular river be a river again,” said our water analyst Spreck Rosekrans. “It is a triumph for salmon—and for Native Americans and all others who value free-flowing rivers.”

## CA governor acts on our Hetch Hetchy recommendations



Greg Richardson/Level Par

Postcard from the future. This digital composite shows what a restored valley might look like.

Ever since Hetch Hetchy Valley — Yosemite's smaller twin—was flooded to make a reservoir for San Francisco 81 years ago, some have dreamed of its return. Now, thanks in part to a groundbreaking study by Environmental Defense, that dream is one step closer to reality.

The administration of California Gov. Arnold Schwarzenegger will assess the feasibility of restoring Hetch Hetchy to its natural splendor.

Our recent comprehensive study, *Paradise Regained*, called for just such an assessment by the state. We concluded that San Francisco could retire the reservoir as it updates its water supply system and use other available reservoirs to store the same high-quality Tuolumne River water for downstream users.

The state will look at all sides of the controversial issue. Its directive states, "Any plan to remove or modify existing water storage would need to be balanced by a viable alternative plan to, at a mini-

mum, replace the water supply now provided by the Hetch Hetchy reservoir." The state also called on the National Park Service to estimate the economic value of returning the valley to public use.

## Help us declare victory for our national symbol

The bald eagle, whose numbers dipped dangerously low just a few decades ago, is now thriving. Today, thousands of bald eagles fly the skies of the lower 48 states—proof that our conservation laws are working. But 2005 could bring efforts by some in Congress to weaken the very Endangered Species Act protections that made the eagle's recovery possible.

We have called on President Bush to follow through on the U.S. Fish & Wildlife Service's five-year-old promise to take the bald eagle off the endangered species list. Doing so would recognize the eagle's recovery, free up resources for protecting other endangered species and send the message that our conservation laws work when fully funded and responsibly implemented.

 Ask President Bush to support a continued strong Endangered Species Act, and to acknowledge its effectiveness by delisting the bald eagle. Take action at [www.environmentaldefense.org/action](http://www.environmentaldefense.org/action).

## Starbucks debuts recycled-content cups



Michael Newman/Photo Edit

Brewing a better cup

From Starbucks to the computer giant Dell, leading companies are cutting paper use and pollution, thanks to innovations introduced by Environmental Defense.

Our partnership with Starbucks paid a dividend recently when the company announced plans to become the first to use postconsumer recycled content in cups, saving five million pounds of virgin fiber annually. It serves 1.5 billion cups per year. "These efforts began with our

partnership with Environmental Defense in the late 1990s," said Ben Packard, Starbucks' director of environmental affairs.

Another success came when Dell announced a paper policy that includes recycled content in its business-to-business catalogs and computer boxes. Dell's policy was modeled after that of our partner Norm Thompson Outfitters, the first major cataloger to switch all its catalogs to recycled paper.

And in the financial services industry, Goldman Sachs and Citigroup are leading the way by switching to recycled copy paper. Each of these efforts reduces energy use, cuts pollution and saves thousands of tons of wood every year. "By proving the business case for environmental changes, our partnerships are paying off through broad industry change," said our project manager Victoria Mills.



Leo Keefer/AccentAlaska.com

Lift off: The 1972 ban we won on DDT helped the bald eagle rebound.

# Green living

## Cleaner cars, smarter choices

Environmentally aware drivers have never had so many choices. More manufacturers are offering hybrid vehicles, which are equipped with both a gasoline-fueled internal-combustion engine and an electric motor. Hybrids deliver better mileage and cleaner emissions with no loss of performance. It can't be said often enough: Hybrid cars do not need to be plugged in.

Also very clean, although not necessarily more fuel-efficient, are the Partial Zero Emission Vehicles (PZEVs) now available in many states. Meanwhile, General Motors and other companies claim they will have developed market-ready fuel-cell cars by 2010. But most experts believe the end-of-decade target for these hydrogen vehicles is highly unrealistic. For now, here's a roundup of the cleaner cars on the market or scheduled to arrive soon.



Ford Escape

### HYBRIDS, AVAILABLE NOW

•**Ford Escape Hybrid** The Escape, which debuted in 2004, uses some of the Toyota Prius technology in an SUV package. Four wheel-drive is an available option for about \$2,000.

•**Honda Accord Hybrid** The 2005 Accord produces 255 horsepower, 15 more than the standard V-6 Accord. Under light loads, the Accord Hybrid shuts off its electric motor and three of its six cylinders.

•**Honda Civic Hybrid** For tighter budgets the smaller 2005 Civic Hybrid offers an 85-horsepower four-cylinder engine and 13-horsepower electric motor. It's also rated PZEV for low

emissions.

•**Honda Insight Hybrid** This spartan two-seater remains in the Honda lineup, but may be gone soon.

•**Toyota Prius** The 2005 model offers more interior space than the Toyota Camry and is a relative bargain. Critics agree it is much improved from the first-generation Prius, with more power and better styling, and the price hasn't changed. Toyota expected to sell 100,000 worldwide in the last year.

### HYBRIDS, AVAILABLE SOON

•**Lexus RX400h** This luxury super-low-emission hybrid SUV will be on the market in April. It combines 270 horsepower (more than the standard Lexus RX330 SUV) and excellent fuel economy. A substantially similar, but more affordable, SUV, the **Toyota Highlander**, will also be available.

•**Nissan Altima** The mid-sized Altima sedan, coming out in 2006, will use some components from the Prius's hybrid drive.

•**General Motors** plans to offer hybrid versions of the **Saturn Vue** and **Chevy**



Toyota Prius

**Malibu** in 2006 and 2008 respectively. These so-called "mild" hybrids will use a modest belt-alternator system to shut off



Edward Holub/Corbis

No longer experimental, hybrid cars have merged into the American mainstream.

the engine at idle and cut off fuel during deceleration, improving fuel economy by an estimated 12%. "Full hybrid" versions of the **GMC Yukon** and **Chevrolet Yukon**, with a projected 30% improvement in fuel economy, will arrive in 2007.



Honda Accord

### PARTIAL-ZERO EMISSION VEHICLES

Partial-Zero Emission Vehicles (PZEVs) have zero evaporate emissions (fuel evaporating from the carburetor or fuel system) and 90% lower emissions of other types than the average new car. They are available in California and the states that follow California's rules: CT, MA, ME, NJ, NY and VT.

There are already 140,000 PZEVs, representing 27 different car models, on California roads. They use sophisticated engine controls and advanced catalytic converters, but add

*Guest columnist Jim Motavalli is editor of E/The Environmental Magazine (for subscription information: 800-967-6572 or [www.emagazine.com](http://www.emagazine.com)). Opinions are the author's and not those of Environmental Defense staff. Environmental Defense makes no endorsement of the products offered for sale.*



Lexus RX 400h

less than \$200 to the customer's bottom line. One example is the \$13,455 **Ford Focus PZEV** (25 mpg city/33 mpg highway), which produces 97% fewer hydrocarbons and nitrogen oxides and 76% less carbon monoxide compared to a typical automobile.

By Jim Motavalli

## Hybrid choices at a glance

	City mpg	Highway mpg	Base price	Available
Ford Escape Hybrid	36	31	\$26,970	Now
Honda Accord Hybrid	30	37	\$30,000	Now
Honda Civic Hybrid	45	51	\$19,800	Now
Honda Insight Hybrid	61	66	\$21,380	Now
Toyota Prius	60	51	\$20,510	Now
Toyota Highlander	30	26	\$35,000 est.	June '05
Lexus RX 400h	30	26	\$40,000 est.	April '05
Nissan Altima	40 est.	—	\$25,000	Summer '06
Saturn Vue	N/A	N/A	N/A	2006
GMC/Chevy Yukon	N/A	N/A	N/A	2007

A complete consumer guide to all types of cleaner cars, including Partial Zero Emission Vehicles, is at [www.driveclean.ca.gov](http://www.driveclean.ca.gov). Two web sites, [www.hybridcars.about.com](http://www.hybridcars.about.com) and [www.hybridcars.com](http://www.hybridcars.com), offer detailed information on hybrids. Federal government fuel efficiency ratings are at [www.fueleconomy.gov](http://www.fueleconomy.gov).

## Online adventures at Environmental Defense

More and more people are turning to the web for information about threats to the environment and ways to make a difference. Environmental Defense is reaching out with engaging web sites offering online educational tools and opportunities for action. Whether your tastes run to learning everyday things you can do to nurture the environment or letting your elected officials know exactly where they should stand, you can find what you need on our special campaign web sites.

**Oceans Alive** Our oceans are in trouble, and you can do something about it. Visit [www.oceansalive.org](http://www.oceansalive.org) for a flash animation of life above and below the surface, or take a sea-life quiz. You can write a letter to President Bush urging him to become the Teddy Roosevelt of the oceans and print out a wallet-sized guide choosing the best—and healthiest—seafood when you shop or eat out.

**Discover Hetch Hetchy** Eighty years ago Yosemite National Park's magnificent Hetch Hetchy Valley was flooded to create a reservoir for San Francisco. Now you can help restore Hetch Hetchy to its original beauty. Visit [www.discoverhetchhetchy.org](http://www.discoverhetchhetchy.org) for a virtual tour of what a restored valley would look like, "narrated" by naturalist John Muir. Sign the Discover Hetch Hetchy Pledge and spread the word to your friends.

**Undo It** Earth is warming up, and humans are the reason. With the Kyoto treaty going into effect, the United States—usually the world leader in innovation—is left out of the action. The McCain-Lieberman Climate Stewardship Act would change that. Sign our petition to support the bill at [www.undoit.org](http://www.undoit.org) and help turn the tide on global warming.



Our new web sites educate and activate.

**Back from the Brink** To set a new model for the future, we are helping landowners create and restore habitat for 15 endangered species to put them on the path to recovery. At [www.backfromthebrink.org](http://www.backfromthebrink.org) you can learn about these partnerships and even adopt your own species. And don't forget to sign the pledge to protect the Endangered Species Act from Congressional attacks.

**Clean Air for Life** More than half of Americans live in or around places that fail to meet healthy air standards set by EPA. Environmental Defense believes that if we take the right steps we can cut air pollution from major sources by 80%. At [www.cleanairforlife.org](http://www.cleanairforlife.org) you can find out if your city ranks as one of the dirtiest for kids and learn about innovative solutions that will help clean our air, like our partnership with FedEx Express.

# The promise and perils of nanotechnology

## WILL THESE MAGICAL MATERIALS SLIP THROUGH REGULATORY SAFEGUARDS?



Greg Palmer/Corbis

Help for Superfund sites. Nanomaterials might speed the cleanup of hazardous waste spills. But are they safe?

Nanotubes, buckyballs, quantum dots, nanowhiskers: their names alone convey the weird magic of these new materials. One-tenth the size of a human cell, engineered atom by atom, nanoparticles could revolutionize everything from energy production to medicine.

Proponents of nanotechnology predict enormous benefits. A single slender nano-cable might carry the world's total

### What they're saying about Environmental Defense

"Environmental Defense is an excellent example of a new spirit of cooperation between traditional agricultural organizations and environmental groups, protecting endangered species while honoring the landowners' basic rights and financial needs."

—Texas Co-op Power Magazine

electrical supply. Nano-cameras could map the interior of an aorta, or nano-retinas restore vision to the blind. Nano-pores could desalinate water; nano-cages could trap PCBs. Within 15 years, predicts the National Science Foundation, the market for nanotechnologies

could exceed \$1 trillion. No wonder companies in the field are hot, with several stocks up 500% last year.

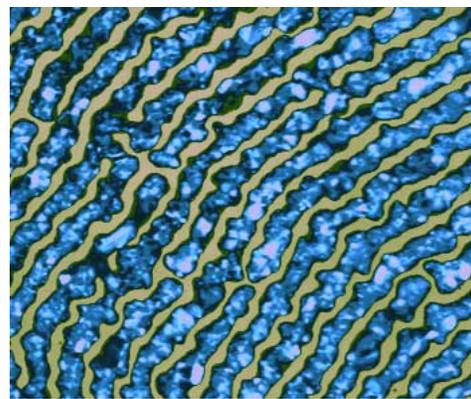
The same novel qualities that make these creations miraculous, however, may also pose dangers to ecosystems and human health. The very few tests done so far have shown that some nanoparticles can gain entry to the bloodstream, travel through nerve cells past the barrier that protects the brain, and cross cellular membranes. Other studies have shown that some nanoparticles can damage brain tissue in fish and lung tissue in mice.

So, while recognizing the potential benefits of nanotechnology, Environmental Defense has taken the lead in advocating adequate testing and regulation. "Government is not yet investing enough to ensure that the risks are discovered in the lab instead of in our bodies, back yards and workplaces," our project manager Scott Walsh told *The Washington Post*. Of the nearly \$1 billion the U.S. government spent last year on

nanotech research, less than \$10 million was dedicated to studying risks.

Current regulations are sorely inadequate, sometimes drawing no distinction between ordinary materials and their nano versions. For instance, relatively inert titanium dioxide becomes a potent bactericide at nanoscale, which could harm ecosystems. Yet regulators consider it the same old substance and allow its use in sunscreen. We're pushing for nanomaterials to be treated as new chemicals and adequately studied for potential risks.

At meetings with industry and regulators, from EPA to the Department of Energy's Nanoscale Science Research Centers, our health director Dr. John Balbus has recalled the history of safety shortcuts in America—from asbestos to lead to DDT—that led to tremendous damage. Balbus is finding allies among insurers and corporations who are concerned about liabilities and public backlash. We are exploring options to partner with leading companies to develop a standard of care, covering everything from product design to disposal. This could serve as a model for regulations.



Heinrich Jaeger & Ward Lopes

Self-assembling silver nanowires as seen under an electron microscope.



## Solutions

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See details opposite page 6.