

INSIDE

Cutting Edge Science:  
30 Years of Biomedical  
Scholars 24

A Healthy Forest—  
And Economy 30

# The Pew Charitable Trusts Trust

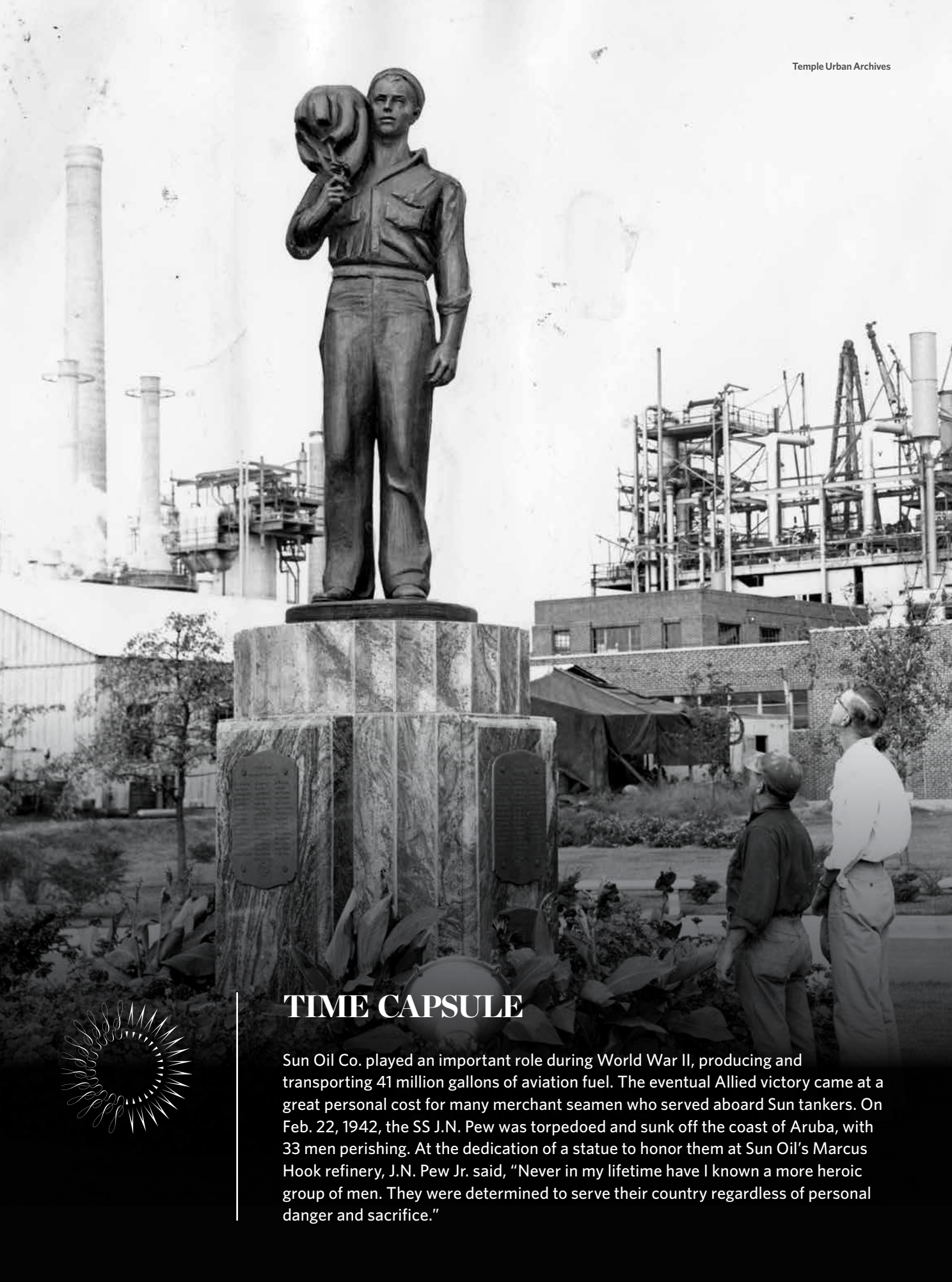


## Do These Fish Look Happy?

There's a reason: More ocean was protected  
in 2015 than any previous year.

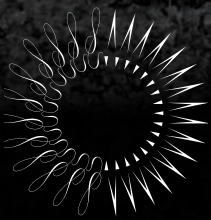
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## TIME CAPSULE

Sun Oil Co. played an important role during World War II, producing and transporting 41 million gallons of aviation fuel. The eventual Allied victory came at a great personal cost for many merchant seamen who served aboard Sun tankers. On Feb. 22, 1942, the SS J.N. Pew was torpedoed and sunk off the coast of Aruba, with 33 men perishing. At the dedication of a statue to honor them at Sun Oil's Marcus Hook refinery, J.N. Pew Jr. said, "Never in my lifetime have I known a more heroic group of men. They were determined to serve their country regardless of personal danger and sacrifice."



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Cover photograph by Michael Melford/National Geographic Creative

**Trust**  
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The Pew Charitable Trusts is a public charity driven by the power of knowledge to solve today's most challenging problems. Working with partners and donors, Pew conducts fact-based research and rigorous analysis to improve public policy, inform the public, and invigorate civic life.

Pew is the sole beneficiary of seven individual charitable funds established between 1948 and 1979 by two sons and two daughters of Sun Oil Co. founder Joseph N. Pew and his wife, Mary Anderson Pew.

# Partnerships That Go Far



There's an African proverb that says, "If you want to go fast, go alone. But if you want to go far, go together." My colleagues at The Pew Charitable Trusts and I could not agree more. On a daily basis, we partner with bold, visionary, and strategic individuals and organizations—combining their ideas, commitment, and financial support with our own to improve public policy, inform the public, and invigorate civic life.

As you will see in this issue of *Trust*, which highlights some of our successes from last year, time and again our collaborations have shown that together we can do so much more than any of us could do on our own.

A decade ago, Pew and a small group of dedicated philanthropic partners launched Global Ocean Legacy, an initiative to promote the creation of the world's first generation of permanently protected, extremely large reserves or "parks in the sea." Each reserve has required careful study of the marine ecology; extensive negotiations with local communities and national governments; and building strong partnerships with scientists, donors, and other organizations. But the payoff has been remarkable. Last year, our collaborative efforts helped win protection for four new marine parks totaling almost 1 million square miles, an area nearly the combined size of our three largest states, Alaska, Texas, and California.

The overuse of antibiotics, especially in animal feed, has led to drug-resistant infections and has become a major public health concern. After consultation with Pew and a review of the compelling evidence, McDonald's

joined Chick-fil-A, Panera Bread, and other major food companies that agreed to stop using chickens raised with medically important antibiotics. And some chicken producers, such as Tyson Foods and Perdue Foods, agreed to new standards for the minimal use of antibiotics. These changes did not happen overnight—but with the backing of a longtime Pew partner, the Lyda Hill Foundation, we were able to help build a strong coalition of parents, nutritionists, veterinarians, and industry leaders who joined in advocating for the public's health in seeking to ensure these lifesaving drugs are used properly.

Extensive surveys by the Pew Research Center with support from the Lilly Endowment showed last year that the vast majority of American adults—77 percent—are religiously affiliated and remain deeply committed to their faiths. And thanks to a decadelong partnership with the John Templeton Foundation, the center also documented how the religious makeup of the world is changing, with the number of Muslims projected to

*Our collaborations have shown that together we can do so much more than any of us could do on our own.*

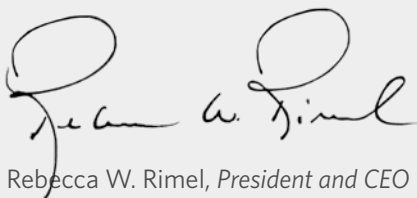
nearly equal the number of Christians by 2050. Such illuminating research not only informs religious leaders and policymakers but educates us all.

In this issue of *Trust*, we also celebrate three decades of the Pew Scholars Program in the Biomedical Sciences. The first project to use the Pew name, it has grown and thrived, supporting more than 600 scholars—many of whom have gone on to receive major scientific awards, including three Nobel Prizes.

The success of the scholars program also led to new collaborations, including a philanthropic partnership with the late Kathryn W. Davis and with the Alexander and Margaret Stewart Trust. With their encouragement and backing, we have created additional opportunities for promising young researchers in the early stages of their careers, a critical time to encourage informed risk-taking. With the program's support, these talented scientists can follow what may appear to be a wrong turn that leads to an unexpected right answer and advance scientific understanding and improve public health around the world.

Another project also saw continued success last year: our work to conserve Canada's boreal forest, a region vital to the health of the globe. Our partners on this journey—as we seek to protect 1 billion acres of this continentwide stretch of wilderness, rivers, and wetlands by 2022—include the William and Flora Hewlett Foundation, the Gordon and Betty Moore Foundation, Ducks Unlimited, and the Michelle and Robert Friend Foundation. Half of this area will be under formal protections and the other half under development rules that ensure commercial activities will not harm the boreal ecosystem. We are well on our way, with 860 million acres under these protections, in part because of people like Ducks Unlimited's wildlife biologist Chris Smith. He is featured in this issue in another installment of our profiles on people of the boreal.

To follow that African proverb, Pew's problem-solving work does span great distances—from the Arctic to the Southern Ocean, and from the American heartland to the biomedical mysteries solved by scientific discovery. But we do not go alone. We work in close collaboration with individuals and organizations that share our commitment to rigorous research, measurable results, and public service. And in doing so, we keep moving—both fast and far.



Rebecca W. Rimel, *President and CEO*

# Trust

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## THE BIG PICTURE

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**Penguins feed on krill, tiny fish that also are heavily harvested. Pew successfully advocated in October for new requirements that fishing vessels in the Antarctic transmit their locations every hour—information that allows detection of unreported krill transfers between ships at sea. The rules will improve catch data accuracy, combat illegal fishing—and help penguins.**





Wildflowers known as “desert gold” stretch across the California desert, where 1.8 million acres are now safeguarded in the largest terrestrial national monument enacted by the Obama administration. *Robyn Beck/Getty Images*

## A Monumental Decision

BY DEMETRA AOSPOROS

From Joshua trees stretching as far as the eye can see, to mountain ranges punctuating the sky, to grasses and sagebrush resembling a plush—and living—carpet, the views across the California desert are surreal and sweeping. The region is also culturally and archaeologically significant, even sacred: Some 1,700 Native American petroglyphs are nestled among the rocky cliffs.

Teeming with an array of wildlife both familiar and endangered and supporting a bevy of botanical treasures, the area has for decades been a popular destination for visitors who hike, camp, photograph, and otherwise immerse themselves in one of the country’s

most pristine landscapes. Today, many of these remarkable landscapes are newly protected, thanks to President Barack Obama’s Feb. 12 designation of three national monuments: Mojave Trails, Sand to Snow, and Castle Mountains. Combined, they safeguard nearly 1.8 million acres in the California desert—the most expansive terrestrial monument enacted by the current administration.

The largest, Mojave Trails, spans 1.6 million acres and stitches together some of the most varied terrain in the U.S.: a mosaic of ancient lava flows, rugged mountain ranges, and spectacular shifting sand dunes. This area has been the focus of geological research for decades.



At 154,000 acres, Sand to Snow is considered one of Southern California's most biodiverse areas, home to a dozen threatened and endangered wildlife species and more than 240 species of birds. Castle Mountains, the smallest monument at nearly 21,000 acres, conserves a key wildlife corridor located at the convergence of the Sonoran and Mojave deserts while protecting water resources and wildlife such as bighorn sheep, mountain lions, and bobcats.

Mike Matz, a director in The Pew Charitable Trusts' U.S. public lands program, which advocated for the designations, calls the protections historic. "This is a

momentous action, with positive implications for local economies, threatened historic and cultural areas, and migrating wildlife, ensuring that these important American landscapes will be conserved for the benefit of generations to come," Matz says. The designations also will boost the region's economic activity by attracting visitors and increasing tourism.

They also were supported by local governments, tribes, business groups, elected officials, community leaders, and a variety of other stakeholders, including faith leaders, sportsmen, historians, and conservationists.

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## Private-Sector Workers Face Obstacles to Saving for Retirement

With the decline of private pension plans over the past three decades, the majority of U.S. private-sector workers now rely on employer-based plans such as 401(k)s to save for their retirement—but many don't have that opportunity.

About half of full-time private-sector workers—49 percent—participate in a workplace retirement savings plan, according to an analysis of data compiled by The Pew Charitable Trusts. Overall, only 58 percent of workers have access to such a plan. That means that more than 30 million full-time, full-year private-sector workers ages 18 to 64 lack access to an employer-based retirement plan.

Pew launched a project in 2014 to research the challenges facing workers trying to save for retirement. "We are examining the impacts of savings proposals on workers, employers, and taxpayers," says John Scott, the project director. "We want to foster policy debate and action on how best to ensure that everyone has the opportunity to save a sufficient amount for retirement."

The project's analysis, released in January, found that access and participation rates vary widely across states and regions. For example, 61 percent of workers in Wisconsin and Minnesota participate in an employer-based pension or retirement savings plan, compared with 38 percent in Florida. Access and participation are higher in the Midwest, New England, and parts of the Pacific Northwest and lower in the South and West.

It also found that there was less access and participation at small businesses than at large ones, that young workers and those with less education are less likely to have access to a plan and that race and ethnicity play a significant role: Hispanic workers' access to a plan

**49%** of all U.S. private-sector workers participate in a retirement plan.

**32%** of workers earning less than \$25,000 a year have access to a retirement plan.

**38%** of private-sector Hispanic workers have access to a retirement plan.

is 25 percentage points lower than that of non-Hispanic workers, and black and Asian workers also report lower rates of access than white workers.

The analysis also showed that income matters—only 32 percent of workers who earn less than \$25,000 have access to workplace retirement plans, while 75 percent of those earning more than \$100,000 do. Just 20 percent of those in the low-income group participate, compared with 72 percent of the higher-wage earners.

—Michael Remez

# The Pew Fund: 25 Years of Helping Those in Need

This year marks the 25th anniversary of Pew's support of organizations that serve some of the most vulnerable residents of the Philadelphia region: disadvantaged children, youth, and families; adults with multiple complex issues, such as those related to homelessness and mental health; and the frail elderly.

Throughout its existence, the Pew Fund for Health and Human Services has awarded over \$200 million to more than 300 organizations.

The latest grants, announced in March, pay special attention to low-income children and youth. The

Philadelphia area is home to about 900,000 people who are 18 or younger—20 percent of whom live in poverty. Inside the city limits, the proportion is even greater.

Thirty-seven percent of Philadelphia's youth—126,000 children—are poor. That is the highest share among the nation's 10 largest cities. Research shows that these youngsters are at risk of falling behind in language, cognitive, and social-emotional development, often leaving them ill-prepared for school and later success in life.

"Pew is pleased to partner with many hard-working agencies that are helping to improve the lives of vulnerable young people and their families," says Frazierita Klasen, the fund's senior director.

—Daniel LeDuc



**Governor Peter Shumlin spoke at Pew's Washington headquarters about Vermont's battle against opioid abuse.**

*Katye Martens/The Pew Charitable Trusts*

## How to Fight the Opioid Crisis: Advice From VT

"We were doing almost everything wrong," Vermont Governor Peter Shumlin told an audience at Pew's Washington office as he reflected on his state's battle with opioid addiction, including heroin dependence.

Before Vermont shifted course, Gov. Shumlin said during the Feb. 19 event, addicts were often caught in a cycle of abuse. They were arrested, jailed, and then put back on the streets to use again. Meanwhile, overdose deaths continued to climb. Today, it's estimated that 78

people die of prescription opioid overdoses nationwide every day.

Gov. Shumlin's administration identified key steps to address the opioid epidemic. Nonviolent offenders now are given a choice of addiction treatment instead of criminal prosecution. And education programs explaining how addiction is a chronic illness are making inroads in public attitudes. New treatment centers are being built to reduce the wait time for people seeking help. And the governor has initiated programs that combine specific treatments, such as medication-assisted therapies, with counseling from physicians and mental health professionals to help recovering addicts stick to their treatment.

"How far we have come—and how fast—should give us all hope," Gov. Shumlin said. But he also noted that a major challenge in stemming the opioid epidemic remains: getting to its "root cause" by changing how painkillers are prescribed.

The governor expressed frustration that nurses and physician assistants, for example, can write prescriptions for painkillers but are not allowed under federal law to write prescriptions for medications that treat painkiller addiction. He also lamented fee-for-service policies, which he said encourage doctors to prescribe painkillers. Vermont, he said, is working to ensure that health providers are rewarded for the quality—not the quantity—of their treatments.

Pew's prescription drug project is working to develop policies to reduce the inappropriate use of medications while still ensuring that patients have access to pain management.

—Erica Sanderson



Watermelons and other produce that reach Americans' grocery stores will be safer thanks to new federal funding for food safety inspections. Mel Melton/Getty Images

## Funding Increases for Food Safety

Congress has approved \$104.5 million for the U.S. Food and Drug Administration in the current fiscal year to continue implementation of the FDA Food Safety Modernization Act—landmark legislation that modernized food safety oversight for the first time in more than 70 years. The move in December, as part of an omnibus spending bill, marks the largest funding increase for the agency's work related to the act.

"This substantial level of funding could not have come at a better time, as the final rules establishing a prevention-based food safety system are being put in place," says Sandra Eskin, who directs Pew's food safety program.

With this funding, the FDA will implement major provisions of the legislation, including educating

food growers, processors, and importers about their responsibilities under its regulations. The food safety law also provides the FDA with new enforcement tools—including the authority to close down a food facility for failing to follow safety standards.

More than 48 million Americans are sickened by contaminated food every year, with related costs as high as \$70 million, according to estimates by the Centers for Disease Control and Prevention. The food safety law, which was enacted five years ago, aims to reduce preventable foodborne illness linked to foods regulated by the FDA—which includes nearly all foods except meat and poultry, or about 80 percent of the nation's food supply.

Pew led a coalition that pushed for enactment of the new law and, since its passage, has worked to ensure that the FDA issues strong, public health-focused regulations and has the resources necessary to enforce them.

—Elizabeth Krevsky

# A Year of Working Successfully

*From Easter Island to South Dakota, Pew's efforts in 2015 protected the environment, improved public policy, and informed the public.*





The waters surrounding Easter Island are now part of the world's third-largest fully protected area of ocean. Chile's government created the reserve in the South Pacific Ocean off the island, which is home to the giant iconic, centuries-old statues called moai. *Michael Melford/National Geographic*

# Oceans



Andrew Randall Christian

The oceans provide food for billions of people, habitat for countless creatures, and climate control for the planet—which makes conserving the seas essential for us all. That means everyone got good news in 2015, when more ocean area was set aside for protection in a single year than ever before. Working with communities and governments around the world, Pew's Global Ocean Legacy project helped win designation of four new marine reserves that total 998,000 square miles (more than 2.5 million square kilometers).

Along with five other locations for which the project previously helped win protections, Global Ocean Legacy sites now account for about 80 percent of all fully protected waters in the ocean.

The newest reserves are in the United Kingdom's Pitcairn Islands, New Zealand's Kermadec Islands, Chile's Easter Island, and Palau.

The reserve around the Pitcairn Islands, a British overseas territory in the South Pacific with 49 residents, was declared on March 18. It will be the world's largest, covering 322,138 square miles (834,334 square kilometers), an area roughly 3½ times the size of the United Kingdom.

Pitcairn's waters are home to more than 1,240 species of marine mammals, seabirds, and fish, along with the world's deepest known living plant, a species of encrusting coralline algae found 1,253 feet (382 meters) below sea level. The reserve protects one of the two remaining raised coral atolls on the planet and a feature called 40-Mile Reef, the deepest and most well-developed coral reef in the world.

The Bertarelli Foundation also announced a commitment to support monitoring of the reserve by satellite to ensure enforcement of restrictions on fishing and other activities.

The Sept. 28 establishment of the 239,383-square-mile (620,000-square-kilometer) Kermadec Ocean Sanctuary, 620 miles northeast of New Zealand's North Island, followed five years of collaboration with representatives from the local iwi (Maori) people, scientists, artists, business and community leaders, the Royal New Zealand Navy, and nongovernmental organizations such as World Wildlife Fund-New Zealand and Forest & Bird.

The Global Ocean Legacy team organized the first Kermadec science symposium to highlight geodiversity and biodiversity in the region, and numerous expeditions with scientists, artists, and youth leaders. The new designation expands a smaller marine reserve established in 1990 and protects more than

50 underwater volcanoes that are part of the longest underwater volcanic arc in the world. The reserve covers a section of the Kermadec-Tonga Trench, the deepest ocean trench in the Southern Hemisphere and the second-deepest on Earth.

On Easter Island, Pew staff and partners collaborated with the indigenous community, the Rapa Nui, which proposed the 243,630-square-mile (631,368-square-kilometer) park to safeguard the biodiversity of the island's waters—home to 142 endemic species, 27 of which are threatened or endangered.

The Rapa Nui sought to protect their waters, particularly from large-scale commercial fishing by foreign-flagged vessels, but also wanted to continue their centuries-old subsistence fishing practices. So the reserve allows that fishing in an area extending 50 miles from the shoreline.

Because Easter Island is a territory of Chile, Pew staff also worked closely with government ministers in the country's capital, Santiago, presenting scientific analyses of the social, economic, and environmental value of reserves. That effort in part prompted Chilean President Michelle Bachelet to announce the new reserve Oct. 5 at the Our Ocean conference in Valparaiso.

In Palau, Pew and its partners worked with President Tommy E. Remengesau Jr., who sought to keep 20 percent of the country's waters open to local and small-scale commercial fishing to feed the domestic market.

Palau's reserve, designated Oct. 28, includes a ban on fishing and all extractive activities in the other 80 percent—193,000 square miles (500,000 square kilometers) of the nation's maritime territory—which means that Palau has more water set aside for full protection than any other nation in the world.

Often cited as an "underwater wonder of the world," the Pacific waters surrounding Palau are home to more than 1,300 species of fish and 700 species of coral. Protecting that environment will also help maintain Palau's status as a top dive destination: Scuba diving tourism generates \$90 million annually for the country's economy.

The new designations increase the total amount of ocean protected to 2.5 million square miles (6.5 million square kilometers). But that's only 2 percent of the world's waters. Scientists say keeping oceans healthy requires protecting at least 30 percent—so the project's work isn't finished. With its partners, Pew aims to help establish a total of 15 fully protected marine reserves, each at least 75,000 square miles (200,000 square kilometers), by 2022.

Alabama, Nebraska, and Utah joined a growing effort to advance fiscally sound, research-based criminal sentencing and corrections policies, while South Dakota and West Virginia took significant steps to improve their juvenile justice systems.

Utah approved legislation that will prioritize prison beds for serious and violent offenders and strengthen sentencing alternatives and support for inmates re-entering society.

Alabama is projected to trim its prison population by more than 4,000 inmates

over five years and improve public safety by investing in community programs for lower-level offenders.

South Dakota and West Virginia will use residential facilities for youth who are a public safety risk and reinvest the savings into programs proven to reduce recidivism.

In each state, leaders from all three branches of government and key stakeholders worked with Pew and its partners to analyze their data and develop customized policy strategies.

# Corrections

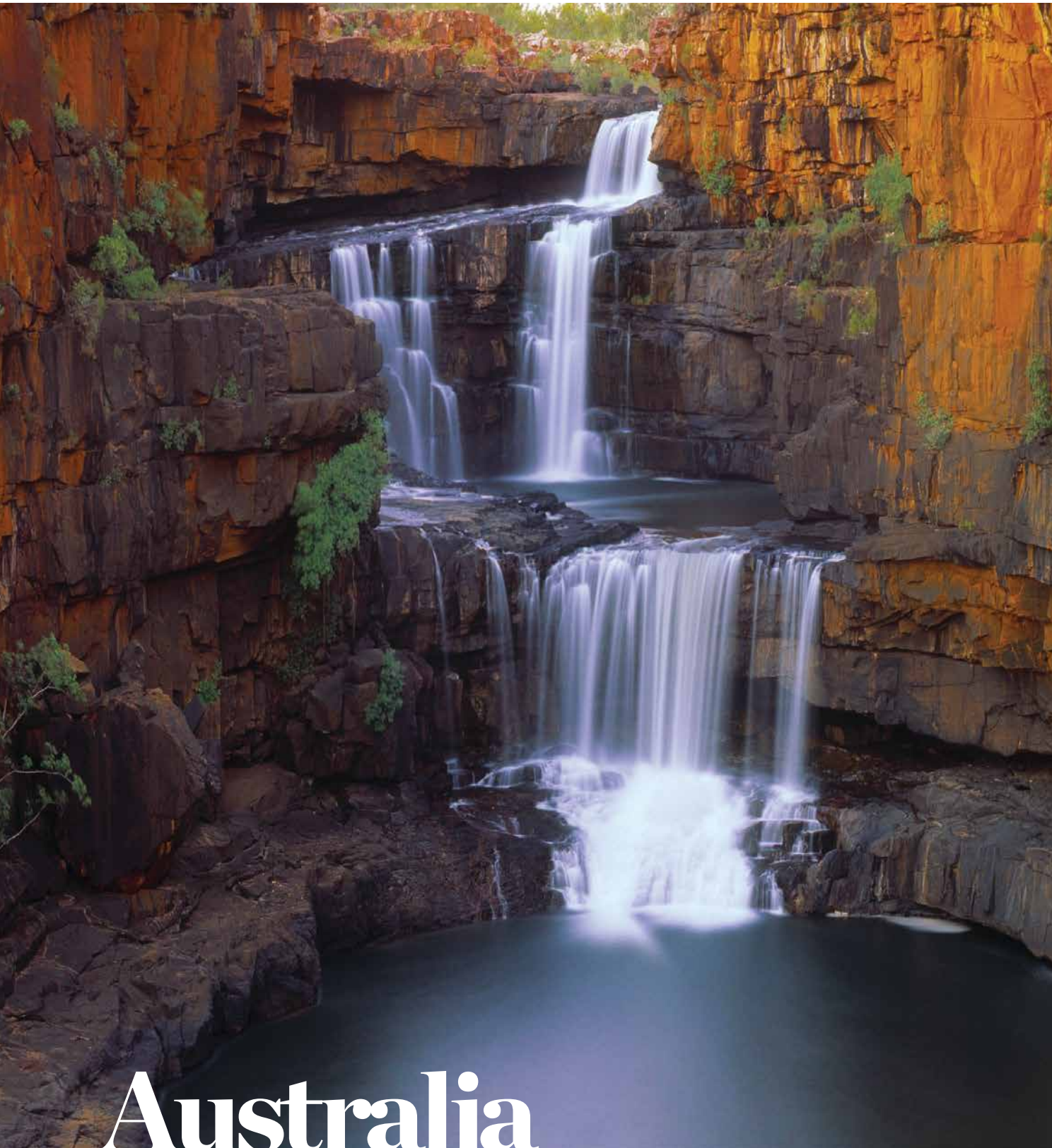


# Sharks

**Sharks swim in safer waters after Pew helped the Federated States of Micronesia and the Dutch islands of Bonaire and Saba create sanctuaries where these top predators are protected from the fishing that kills about 100 million of them around the world each year.** *Getty Images*







# Australia

The Mitchell Falls sit on Western Australia's remote Mitchell Plateau, one of the last places on Earth where native wildlife has remained unchanged for almost 50,000 years. With Pew's urging, the Western Australian government protected the region from mining, and it will become part of the new Kimberley National Park.

*Janelle Lugge/Shutterstock*

# Immigration

A photograph of a street scene in a city, likely Los Angeles. In the foreground, a person is seen in profile, looking towards the right. The street is paved and has a 'ONE WAY' sign pointing left. In the background, there is a hillside with many houses, some of which are built on steep slopes. An American flag is visible on a pole on the hillside. The sky is clear and blue.

More Mexican immigrants left the United States and returned home than migrated north between 2009 and 2014, according to a Pew Research Center analysis.

The slowdown of Mexican immigrants likely stems from several factors: The economy's slow recovery after the Great Recession may have made the U.S. less attractive to potential migrants and may have pushed out some Mexican immigrants as the job market

deteriorated. The stricter enforcement of immigration laws may have contributed to fewer Mexican immigrants coming to the U.S. Also, Mexican migrants expressed a desire to reunite with family.

While there are no official counts of how many Mexican immigrants enter and leave the U.S. each year, Pew's estimates have become widely accepted among policymakers as an authoritative source.

# Antibiotics

In recognition of the growing risk of drug-resistant bacteria, McDonald's said last year that it would stop buying chickens that were raised with antibiotics used in human medicine. Tyson Foods also said it would stop using human antibiotics in raising its flocks.

The two companies join such household names as Chick-fil-A and Perdue Farms in cutting back on or eliminating the use of antibiotics in their poultry.

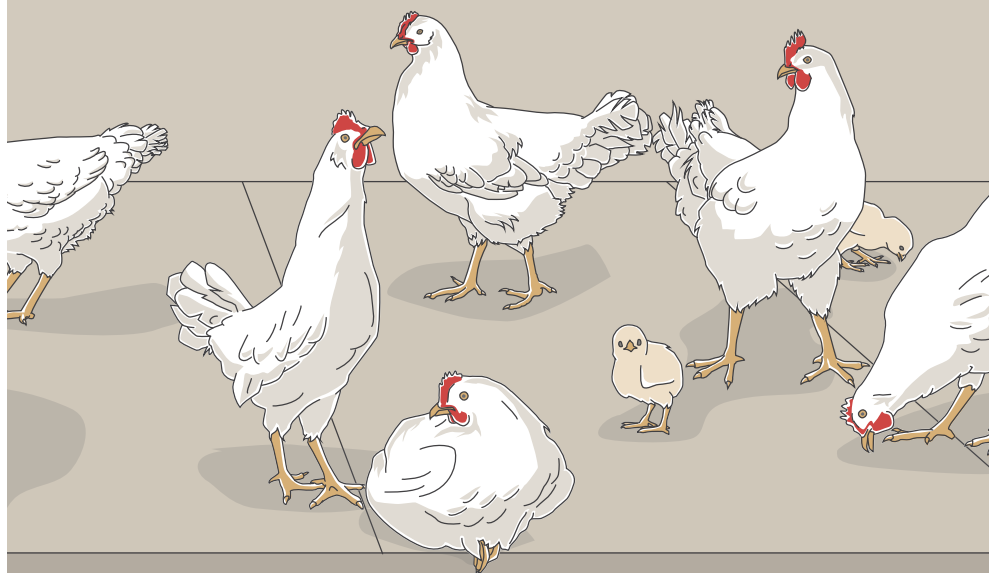
For decades, antibiotics have been used in food animal production without veterinary oversight and to make animals grow faster. Under FDA guidance, drug companies are expected to remove growth promotion indications from product labels by year's end.

Over time, bacteria develop resistance to antibiotics. Overuse of these lifesaving drugs accelerates this process and can create superbugs. These superbugs are resistant to several types of antibiotics and sicken at least 2 million people each year in the United States, with as many as 23,000 people dying.

As part of efforts to promote public awareness of this threat and to encourage development of new antibiotics, Pew works with food companies to develop new policies. Last year marked significant progress—Wal-Mart also joined the effort, asking its poultry, meat, seafood, dairy, and egg suppliers to use antibiotics responsibly and report how they are using them.



The Washington Post via Getty Images





# U.S. Lands



President Theodore Roosevelt once observed that Americans “have fallen heirs to the most glorious heritage a people ever received, and each one must do his part if we wish to show that the nation is worthy of its good fortune.” Working with partners at the state and local level, Pew seeks to preserve this heritage by seeking protection of our nation’s threatened wildlands.

And 2015 saw notable successes with the creation of three new national monuments, establishment of a new wilderness area, and an increase in designated conservation protection areas.

#### **National monuments:**

- Nevada’s Basin and Range, a 704,000-acre region of irreplaceable Native American rock art, wildlife habitat, and rare plants, was announced in July.
- California’s Berryessa Snow Mountain, also announced in July, totals 330,780 acres of natural, historical, and cultural resources.
- Colorado’s Browns Canyon, announced in February, is one of the country’s most popular destinations for rafting, kayaking, fishing, and wildlife-watching.

#### **Protected wilderness:**

- Idaho’s Boulder-White Clouds region, which encompasses over 275,000 acres of alpine ecosystem, was designated in August. It includes a large roadless core that supports rare flora and fauna and provides critical habitat for animals such as elk, moose, and bighorn sheep.

#### **Land conservation:**

- In the largest land conservation effort ever undertaken by the U.S. Bureau of Land Management, more than 35 million acres across 10 Western states will be managed to balance land conservation alongside energy development, protecting the greater sage-grouse, elk, mule deer, pronghorns, golden eagles, and hundreds of other species.

**The early morning sun reflects off Idaho’s Little Redfish Lake, between the Boulder-White Clouds and the Sawtooth wilderness areas.** Alan Majchrowicz/Getty Images

Four states joined the Electronic Registration Information Center in 2015. Formed with Pew's assistance, ERIC mines public records to help keep voter rolls accurate and up to date.

<b>Alabama</b>	✓
<b>Illinois</b>	✓
<b>Pennsylvania</b>	✓
<b>Rhode Island</b>	✓

# Elections

Most Americans used to be middle class. Not anymore. A Pew Research Center analysis, which received widespread attention last year, found that the middle class is now matched in numbers with the combined upper and lower economic tiers.

In at least one sense, the shift represents economic progress: While the share of U.S. adults living in both upper- and lower-income households rose alongside the declining share in the middle from 1971 to 2015, the analysis showed the share in the upper-income tier grew more.

Still, middle-income Americans have fallen further behind financially in the new

century. Because of the housing market crisis and the Great Recession, their median wealth (their assets minus their debts) fell by 28 percent from 2001 to 2013. And in 2014, the median income of these households was 4 percent less than in 2000.

The study defined the American middle class as adults whose annual household income is two-thirds to double the national median, about \$42,000 to \$126,000 annually in 2014 dollars for a household of three.

While they made up half of the U.S. adult population last year, that was down from 61 percent in 1971.

# Middle Class



# Religion



Jewel Samad/Getty Images

Americans are less religious, with those who believe in God, pray daily, or regularly attend services on the decline, according to last year's groundbreaking study of more than 35,000 people by the Pew Research Center. Most of that decrease comes because of the "nones," the growing minority of people, particularly in the millennial generation, who don't identify with any particular religion. But that same study found that those who are members

of religious denominations remain devout.

Pew identified new global trends as well. Over the next four decades, Christians will remain the world's largest religious group, but Islam will grow faster than any other religion. By 2050, the number of Muslims, like these in Brooklyn's Prospect Park, celebrating the Eid al-Fitr festival marking the end of the fasting month of Ramadan, will equal the number of Christians worldwide.

# Philadelphia



Katye Martens/The Pew Charitable Trusts

Around the nation, community colleges are facing new pressure to produce graduates and skilled workers. The federal government has called for 30 percent more associate degree holders by 2020, with extensive research showing those credentials lead to better jobs and better lives, especially for low-income individuals.

So Pew examined the Community College of Philadelphia to gauge its effectiveness in helping Philadelphians attain higher education and marketable job skills. The analysis found that the school has had mixed success in recent years. It has been producing the highest number of graduates since its founding 50 years ago. But its students earned associate degrees—and

bachelor's degrees from other institutions—at rates that were about average or below average. And tuition for students like Fannetta Sanders (above), who was featured in the report, was far above the median price of similar schools and higher than every other community college in the Philadelphia region.

The college has undertaken improvement plans over the years, including those in areas in which it has lagged some other colleges, according to the report. Among the initiatives the school is now focusing on are hiring more advisers, lessening the choice of electives in its academic curricula, and making workforce development a top priority.

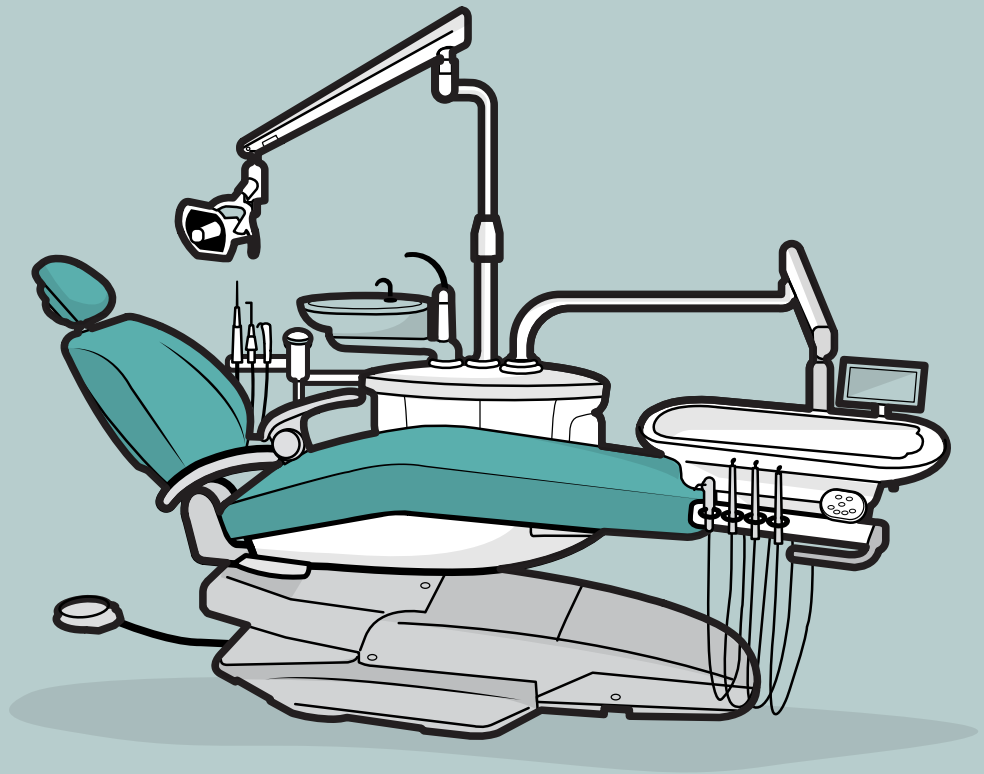


# Dental Health

Dental therapists are midlevel providers—similar to physician assistants on a medical team—who offer preventive and routine restorative care, such as filling cavities. They can help fill a need in places where there aren't enough dentists, and they are authorized to practice in Maine, Minnesota, and, under tribal authority, in Alaska, Oregon, and Washington, as well as in more than 50 countries around the globe.

In August, the Commission on Dental Accreditation, the U.S. accrediting body for academic dental programs, approved standards for dental therapy training programs. This move acknowledged the

need and support for dental therapy in the U.S. and removed a major roadblock to the profession's growth. More states are likely to authorize dental therapy because they will no longer have to create standards for training, schools will be more inclined to launch training programs, and students will be more likely to enter the field because their education will be recognized by more employers and they will be eligible for federal financial aid. The decision also bolsters Pew's efforts to authorize dental therapists in more states to offer underserved Americans greater access to oral health care and to help make more efficient use of taxpayer dollars.



*Kodi Seaton/The Pew Charitable Trusts*



# CUTTING EDGE SCIENCE

*Over three decades, Pew biomedical scholars have created a network of collaboration that has increased scientific knowledge throughout the world.*

by Karen Hopkin

It was at the 1997 annual meeting of the Pew biomedical scholars in Puerto Vallarta, Mexico, that newly minted scholar Greg Hannon first heard Craig Mello (class of 1995) talk about a phenomenon called RNA interference, or RNAi, in which small RNA molecules could be used to block the activity of specific genes, allowing study of their function.

"It sounded like this magical thing: Tiny bits of RNA could silence genes throughout a worm's body—even across generations. But Craig said he didn't know how it worked," recalls Hannon, currently at Cancer Research UK Cambridge Institute. "I was intrigued, so I spent some time talking to him about it."

"He peppered me with questions," laughs Mello, who now runs a laboratory at the University of Massachusetts in Worcester. And Hannon wasn't the only one. Richard Carthew of Northwestern University (Pew biomedical scholars class of 1995) was similarly "charged up about RNAi," Mello says. "I distinctly remember Rich asking, 'Do you think it will work in flies?' And me saying, 'Well, probably not'—although I did urge him to try it."

"At the next meeting, Rich got up and announced that he'd tried RNAi in fly embryos and it worked," says Hannon. "I left and called my lab and said, 'OK, here's what we'll be working on now.'" The Pew Scholars Program in the Biomedical Sciences, he says, "completely changed the trajectory of everything I did."

In its way, RNAi has changed the trajectory of modern molecular biology. The approach gave researchers unprecedented access to the innermost workings of living organisms, providing a powerful experimental tool for unraveling the role that each and every gene plays in most fundamental biological processes. At the same time, RNAi holds the potential to study and even treat human diseases, many of which are caused by the activation of genes at the wrong time or in the wrong place.

Along with Mello, who took a genetic approach, Hannon, Carthew, and Phillip Zamore (a 2000 scholar also at UMass in Worcester) helped to dissect the molecular mechanisms that govern the process. "So many of the really important people in the field were [Pew biomedical] scholars," says Mello, who went on to share the 2006 Nobel Prize in physiology or medicine

with his collaborator, Stanford University's Andrew Fire, for the work he started as a scholar. "RNAi really owes a lot to Pew."

So do many of the scientists who can trace their success in part to their experiences as Pew scholars. Since its beginnings, the Pew scholars program has provided funding to more than 600 outstanding young researchers whose work seeks to improve human health. More importantly, the program has fostered countless collaborations and informal intellectual interactions among this cohort of curious and creative academicians—like the work surrounding the study of RNAi.

"It was created to be a program that funded the best of science, and all about data and research—two words that underpin everything we do at Pew," says Rebecca Rimel, president and CEO of The Pew Charitable Trusts, who helped establish the scholars program three decades ago, not long after joining the organization as a manager of health programs. And while the Trusts were created nearly 70 years ago, the biomedical scholars program was the first to carry the Pew name.



Each year, more than 180 academic institutions across the country are invited to submit a single nominee for consideration, and since 2014, program alumni have been invited to do the same. The nominees' applications are reviewed by the national advisory committee, whose members—led by Mello, the current chair—select 22 scholars to receive support for four years. The award is meant to "foster innovation and risk-taking, encouraging scientists to take their work in new and uncharted directions," says Rimel.

For George O'Toole of the Geisel School of Medicine at Dartmouth (class of 2000), the funding allowed him to study how bacteria form biofilms in the airways of patients with cystic fibrosis. Exploring how microbes interact in a host tissue, O'Toole says, "has allowed us to ask questions other people haven't been able to tackle, and has become a big part of what we do in the lab."

Because it rewards innovation, the scholars program gives researchers the freedom to pursue ideas outside the mainstream, says Columbia University's Patricia Ducey (class of 2001). "No one would have funded my crazy idea," she laughs. "We had zero data. But we had a gut feeling." That intuition led to the discovery that cells in the bone can regulate the secretion of insulin—work that could open up a new approach for combatting diabetes. Because she had no support from other sources, Ducey notes, the grant from Pew "basically opened up my career."

Funding risky ideas is "one of the most valuable aspects of the program," notes Yale University's Nancy Carrasco (class of 1989). Her challenging project involved cloning the transporter protein that

allows cells to take up iodide, which the body uses to produce thyroid hormones. She has since thoroughly characterized the operation of the transporter and discovered that the protein is present in breast cancers, a finding that could lead to a new approach to treating the disease.

Pew's backing similarly allowed Victor Velculescu of Johns Hopkins University (class of 2004) to undertake a novel large-scale genetic analysis that turned up PIK3CA, a gene involved in cell proliferation and survival that he says "is one of the most frequently mutated genes in human cancer." That discovery is leading to more personalized treatments that take into account the specific genetic derangements present in the tumors of each individual patient.

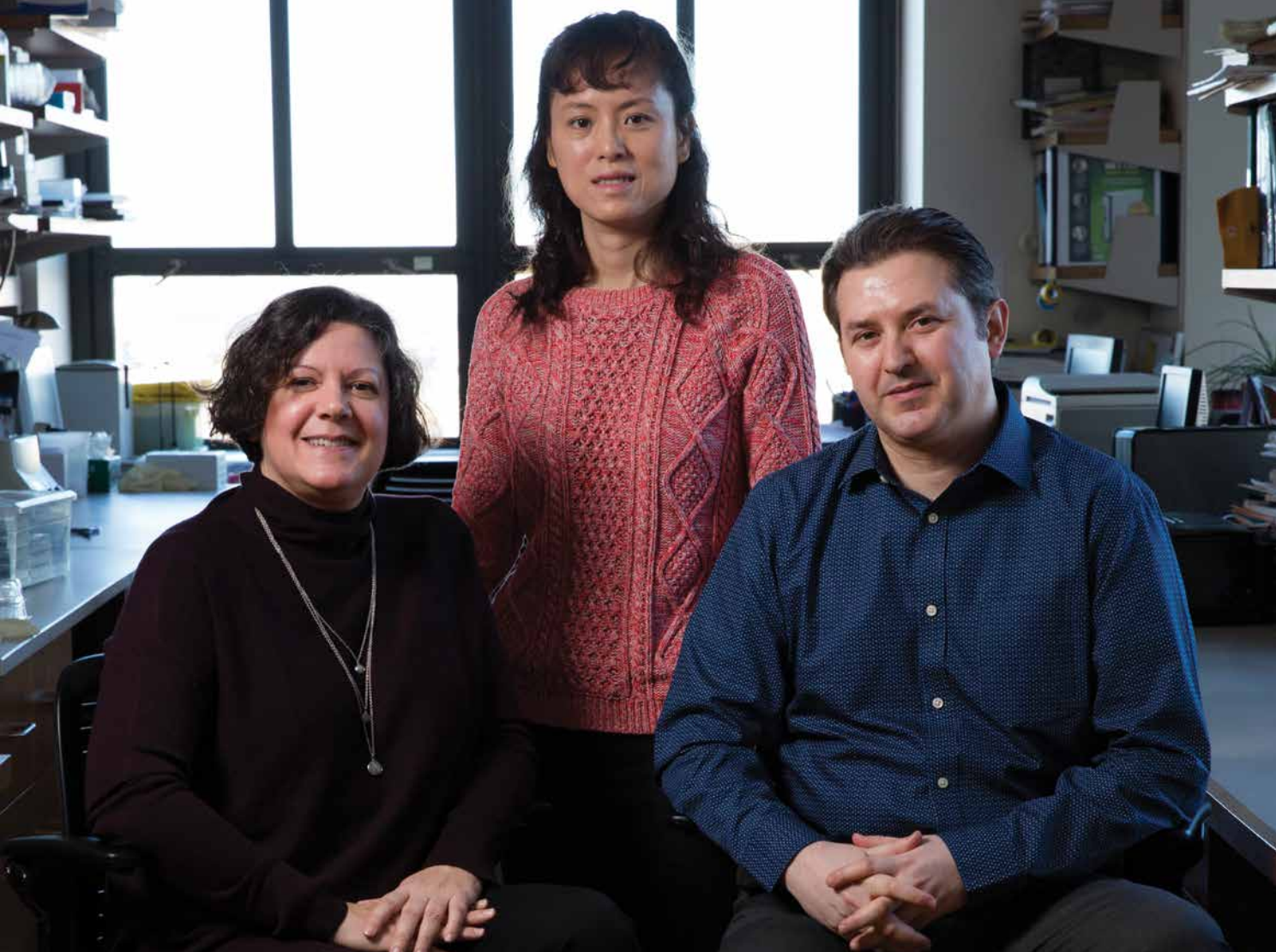
One reason that scholars feel empowered to pursue such "high-risk, high-reward" lines of research is that the program supports a person, not a project. "When launching the program, we felt strongly that investment in individuals pays huge dividends," says Rimel.

The scholarship also comes at a critical juncture, when researchers are trying to establish their young careers. Felicia Goodrum of the University of Arizona (class of 2008) used her Pew funding to develop an animal model in which she could study cytomegalovirus, a virus—related to the ones that cause chickenpox and mononucleosis—that infects only humans. By generating mice with human bone marrow, Goodrum could identify the viral genes that allow this infection to persist in people with a normally functioning immune system. "Pew gave me the confidence that we could make this work," says Goodrum. "They believed in the project and in me."



In addition to a vote of confidence and financial support, the program sponsors an annual meeting that brings the scholars together to get their creative juices flowing. At these gatherings, the scholars discuss their work and exchange ideas. And because they come from a variety of fields, the scholars hear about science that is outside their area of expertise, leading to conversations that can spark new ideas and innovative collaborations.

At a recent Pew reunion meeting, Andrew Ellington of the University of Texas at Austin (class of 1994) was inspired by a talk given by 2007 scholar Julie Pfeiffer of the University of Texas Southwestern. She discussed how the bacteria that live within an organism—its microbiome—might inadvertently act like cellular launch pads that can promote concentrated viral assault. By eliminating these viral binding sites, Ellington says, "it should be possible to engineer the microbiome to prevent infections"—an approach he would like to pursue. "Had I not been exposed to her ideas in person, and been able to talk to her about her science, I would



Scholarships often come at a critical time for promising young scientists. Pew biomedical scholars Patricia Ducey, Qing Fan, and Ivaylo Ivanov are researchers at the Columbia University Mailman School of Public Health in New York City, and Ducey says the Pew grant “basically opened up my career.” *Katye Martens/The Pew Charitable Trusts*

not have come up with the project.”

The scholars’ scientific diversity also makes it easier for them to open up about their work. “A lot of times you go to big meetings and people hold their cards pretty close to their chest,” says Mello. “But at Pew, you’re encouraged to brainstorm.” And given the scholars’ intellectual adventurousness, attending a meeting guarantees that “you’ll hear about amazing science from people who are at the cutting edge—a mix of ideas you would otherwise never encounter,” says Sandra Degen (class of 1987), who recently retired from her post at the Cincinnati Children’s Hospital Medical Center.

The meetings are held in quiet, remote settings that allow the scientists to escape their daily pressures and also foster casual conversations that can lead to what Rimel calls “an impromptu sharing of science.”

The resulting “five days of scientific fun is exactly what you thought a scientific life would be like back when you first decided you wanted to be a scientist,”

says Ducey. Attending “really is a breath of oxygen.”

More than renewing enthusiasm and promoting intellectual exploration, the annual get-togethers have also spawned a number of close scientific collaborations. At the 2009 meeting in Puerto Rico, O’Toole struck up a conversation with Cornell University’s Holger Sondermann (class of 2008). “We were hanging out at the kiddie pool,” says O’Toole, who was spending time with his 18-month-old son while his wife, Deborah Hogan (class of 2005), also at Dartmouth, attended a session. “And we started talking about our common scientific interests.”

That poolside chat precipitated what has become a decadelong collaboration studying the mechanisms that allow microbes to come together in dense mats called biofilms, a strategy that can render them more tolerant of antibiotics. O’Toole’s team identifies the genes responsible, and Sondermann’s crew determines the structure of the relevant proteins, information

that can point toward ways to interfere with biofilm formation. The collaboration has even helped them secure additional funding. “We’ve gotten great feedback from grant review panels for the fact that we’ve teamed up and can come at the problem from very different directions,” says O’Toole.

And theirs is not the only partnership to emerge from the scholars program. When Marnie Halpern (class of 1995) stumbled across a gene that was expressed exclusively on one side of the brain, she got in touch with fellow scholar Juan Carlos Izpisua Belmonte of the Salk Institute for Biological Studies (class of 1996 and current member of the national advisory committee), who was working on the genes responsible for setting up left-right asymmetry in the rest of the body. That contact led to a publication and a collaboration “that might never have happened had I not met him at a Pew meeting,” says Halpern.

Some scholars maintain more than one Pew-based partnership, and some have also made connections with the program’s advisers. At dinner one evening, Ivo Ivanov of Columbia University (class of 2012) found himself seated next to Pamela Bjorkman of the California Institute of Technology, a 1989 scholar and current member of the national advisory committee. Talk quickly turned to their common interest in the molecular interactions that take place between host organisms and the bacteria that live within intestines, a conversation that has led to a grant and a manuscript in preparation. “It’s one thing if you write a letter to somebody to say you want to collaborate,” says Ivanov. “It’s another thing when you sit down and find common ground. That really makes things happen.”

The Pew program also helps scholars find mentors. “When I received this award, I was an M.D. who had done six years of basic research, but I didn’t have the same sorts of contacts as other people who came from major programs or had powerful mentors who were invested in ensuring their success,” says Ian Lipkin of Columbia University (class of 1991). Through the

Pew scholars program, Lipkin met Joshua Lederberg, who had been the first chair of the program’s national advisory committee. Lederberg shared the young scholar’s interest in emerging infectious diseases and offered Lipkin guidance as he worked to identify West Nile virus and SARS during those outbreaks. “In Josh, I found the mentor I never had—he completely transformed my career,” says Lipkin.

It does seem that Pew scholars turn to one another and to members of their community with great frequency, as evidenced by how often they end up citing their fellow scholars, says Jevin West of the University of Washington in Seattle, who maps the flow of information through scholarly communication networks to identify influential papers, journals, and individuals. Wading through the voluminous body of publications generated by the Pew scholars, West has confirmed that the impact of scholars’ collaboration is far-reaching. “Pew scholars, no surprise, are incredibly productive and incredibly influential in the biomedical field,” he says. And, he adds, “their most influential work is often done while they were funded by Pew.”

■

The success of the program has led Pew to create others as well. In 1990, under the guidance of Nobel laureate Torsten Wiesel, who served as chairman of the scholars’ national advisory committee for more than a decade, Pew launched a program for biomedical scientists from Latin America. Each year, 10 young researchers from Latin America receive support for postdoctoral studies in the United States, as well as additional funding to establish a laboratory when they return to their home countries. Wiesel remains chairman of the advisory board for the Latin American fellows, continuing a long tenure of leadership that Rimel says has been a hallmark of both programs.

The biomedical scholars program has also led to new collaborations for Pew. The late philanthropist Kathryn



Sweden’s King Carl XVI Gustaf has awarded the Nobel Prize to three Pew biomedical scholars: Roderick MacKinnon for chemistry in 2003, Craig Mello for physiology or medicine in 2006, and Carol Greider for physiology or medicine in 2009. *Getty Images*



Pew biomedical scholars gather each year, as they did at a lakeside retreat in rural Georgia this spring, to discuss their work informally and share ideas. They “hear about amazing science from people who are at the cutting edge—a mix of ideas you would otherwise never encounter,” says scholar Sandra Degen. *Katye Martens/The Pew Charitable Trusts*

W. Davis believed in the promise of young scientists, and her legacy benefits the program today. And for the past three years, the Pew-Stewart Scholars Program for Cancer Research has funded early-career scientists whose research is leading toward a cure for cancer. Pew administers the program funded by the Alexander and Margaret Stewart Trust, which has long been committed to cancer research and prevention.

The biomedical scholars program’s 30 years of success has not only led to these new opportunities but also led the scholars themselves to enlarge their roles beyond their laboratories. During their scholarship years, they are actively encouraged to reach out and extend their influence to the betterment of society. “Scientists can go their whole career only talking to other scientists,” says Mello. “But communicating with the broader community is so fundamentally important. Without it, the scientific enterprise is going to break down. For me, that really resonates, and it has really helped me, in the years since the Nobel, be more engaged with society at large. I felt better prepared for that because of my training as a Pew scholar.”

Scholars have been inspired to write letters to the editor or explain issues to members of Congress or meet

with governmental health agencies like the National Institutes of Health. “There was just this different kind of attitude toward being a scientist and putting your work in the context of humans, rather than just going to the lab and doing your experiments,” says Bjorkman, who used her experience as a Pew scholar to inspire the lectures she gave in the California Institute of Technology’s undergraduate biology course for nonmajors.

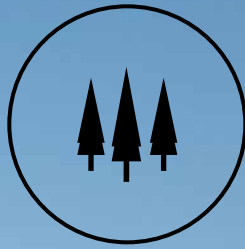
“We really do encourage the scholars to get involved in science policy, get involved in issues in their community, and speak out on issues relating to science in the public policy arena,” says Rimel. “So we are pleased to see that they have taken this to heart and that they are exercising their leadership in a broader civic way.”

The Pew scholars “instill a sense that you have to go beyond the research to advocate, educate, or in some way give back,” says Phil Hieter of the University of British Columbia (class of 1986). And over time, he says, “that’s going to have an effect” on the world.

*Karen Hopkin, who was a Knight science journalism fellow at the Massachusetts Institute of Technology, is a Boston-based writer and contributor to Scientific American.*







# HOW TO HAVE A HEALTHY FOREST—AND ECONOMY

*Wildlife biologist Chris Smith seeks a balance between conservation and development that helps Canada's boreal region—and its people—thrive.*



by Sheldon Alberts  
Photography by Katye Martens

*The second in a series of stories profiling the people of Canada's boreal forest.*

Chris Smith is standing in knee-deep water at the edge of a boreal marsh, surrounded by thick growths of cattails, reed grass, shrubs, and sedges. As he sloshes through this lush aquatic environment, Smith realizes that his well-worn hip waders are slowly filling with water.

"Just as I predicted: They're leakers," he announces. Despite this ill-timed outdoor wardrobe malfunction, Smith is grinning.

A wildlife biologist with more than 35 years of experience, Smith relishes any opportunity to share details about the myriad types of wetlands found near the edges of First Cranberry Lake in Canada's boreal forest region.

He points in quick succession to several varieties—a shore marsh, a graminoid fen, a shrubby fen, a hardwood swamp—before regaling several visitors with the inside jokes that conservation scientists tell during wetlands training sessions.

"We would just come up with these great terms like, 'Don't bog me down,' and 'I'm feeling really swamped,'" he laughs.

Humor and passion for the outdoors come in handy in Smith's line of work. He heads Ducks Unlimited Canada's boreal conservation programs, managing the nonprofit group's science-based efforts to protect forest and wetlands in the region, which stretches across 1.2 billion intact acres in northern Canada.

Smith also leads Ducks Unlimited's work with forestry companies to improve their environmental practices, which includes raising awareness about the importance of healthy wetlands and the need to balance environmental prosperity with economic prosperity in the resource-rich boreal.

The best part of Smith's job: He works mostly from a home office tucked amid the trees in Cranberry Portage, a community of 700 that borders Grass River Provincial Park in northern Manitoba. The 560,000-acre park provides critical forest and wetlands habitat for caribou, wolves, bears, waterfowl, and songbirds.

From his kitchen window overlooking First Cranberry Lake, Smith gets daily, visible reminders of the boreal ecosystem he has spent most of his professional life trying to conserve. "One of the things that I really appreciate about living in the boreal, having the wilderness around us, is the fact that it's quiet," Smith says. "You hear every footstep when you're walking through the forest."

Although he was not born in the region, Smith knows the landscape and waterways of the boreal forest intimately. Raised in the prairie city of Winnipeg, the



capital of Manitoba, he and his wife, Connie, a stained-glass artist, moved north when Chris was in his 20s. Now, he describes the two of them as "northerners by choice."



Since beginning his career in the boreal as a field biologist studying the vast wetland complexes of the



**Chris Smith, who lives and works in Canada's boreal, believes there is plenty of common ground for environmentalists and loggers to cooperate on development and conservation planning.**

Saskatchewan River Delta, one of the largest inland deltas in North America, Smith has flown hundreds of hours in float planes over the boreal region, conducting bird counts and mapping wetlands for Ducks Unlimited Canada. He has also tracked herds of woodland caribou from aircraft and packs of wolves by snowmobile.

The landscape—whether experienced on a walk through the bush, in a boat ride over open water, or in

a bush plane flying 100 feet above the tree line—never fails to leave Smith in awe.

“The intactness of the area” is what makes it special, he says. “It doesn’t seem broken to me, you know?”

Yet Smith understands how easily intact landscapes can be lost to unchecked development.

In some southern regions of Canada, he notes, more than 70 percent of wetlands have disappeared. The loss



"The intactness of the area" is what makes it special, Smith says. "It doesn't seem broken to me, you know?"





**Connie Smith entertains a squirrel, some of the boreal's rich wildlife that includes woodpeckers, songbirds, and other critters that have become part of daily life for her and her husband.**

of that habitat has resulted in increased flooding and pollution in one of Canada's largest lakes, Lake Winnipeg.

Development "is not that rapid up here at this point, so what a tremendous opportunity [we have] to conserve nature. Rather than thinking about how we're going to repair something after it's been negatively impacted," he says, "we can think ahead of time about how we can develop wisely.

"There are just not many places like this in the world," he adds. "It's one of the largest intact ecosystems on the globe. That doesn't mean development can't take place. It means think carefully about it."



In the boreal, where wetlands are as ecologically important as wooded areas, Smith says it's not too late to find a balance that protects the environment,

embraces sustainable development of resources, and maintains healthy communities. And the conservation benefits of protecting the boreal extend far beyond Canada's borders, he says.

"Wetlands store more carbon than the terrestrial environments. When you look at the size of the boreal forest in North America, it's regulating our global climate and helping offset the implications of climate change," he says. "The wetlands in the boreal forest are providing human beings with a lot of services that they probably don't even realize."

Pew has partnered with Ducks Unlimited Canada on boreal forest and wetlands conservation for more than 15 years, pursuing a balanced approach that ensures both economic prosperity and environmental health in the boreal.

Through the International Boreal Conservation Campaign, the two organizations work with indigenous



Chris Smith observes Connie's latest stained-glass piece, which is inspired by the boreal's songbirds, waterfowl, and other wildlife.

First Nations, northern communities, and governments to conserve 50 percent of the region in a network of large, interconnected protected areas and improve natural resource management standards across the board, to make it the world's best conserved forest ecosystem.

These measures will assure that the forest remains healthy and productive and supports a prosperous economy far into the future.

Smith knows from experience that loggers and conservationists are not always natural allies and that decades-old suspicions between the two sides die hard. While he's worked during most of his career with Ducks Unlimited Canada, he also spent a decade employed in the forest sector helping to develop forest management plans that accommodated the interests of the environment as well as the people who live in the boreal region.

And he believes there is a great opportunity for the two sides to cooperate on sound, comprehensive development and conservation planning in the boreal. The old caricatures—that conservationists oppose cutting down trees and that loggers want only to clear-cut entire forests—are outdated, Smith says.

"If people are willing to work together, and identify and be open about the challenges of development versus conservation, I think wonderful things can happen."

"A lot of these folks that were doing work in forestry were conservationists themselves," he says. "People really did care about [the environmental impacts] of what they were doing and wanted to do the best job they could."



Smith's experience in the forest sector has positioned him as a liaison of sorts between conservationists and



When the Smiths built their lakeside home, they left the shoreline of shrubs, birch, and spruce in place, keeping intact the habitat for blue herons and other boreal birds.



## FAST FACTS

▲ Canada's boreal forest contains 25 percent of the world's wetlands.

▲ The region includes more surface freshwater—about 200 million acres—than anywhere else on Earth.

▲ The boreal stores twice as much carbon per acre as tropical rain forests.

▲ In Manitoba, the boreal covers 140 million acres, and more than 80 percent remains largely intact.

the resources industries. In 2014, he helped produce a Ducks Unlimited Canada operational field guide for forestry companies that were keen to minimize the impact of logging roads built in sensitive boreal wetlands.

"To me, it's unrealistic to think that we can conserve everything, or preserve everything, or develop everything," he says. "In the past, these were often opposing views: those that are pro-industry versus pro-conservation. The reality is that there's room for both."

The communities surrounding his home in Cranberry Portage, he points out, would not exist without industry. To the north of Cranberry Portage, the small city of Flin Flon relies on mining. To the south, the town of The Pas depends heavily on forestry.

"I get to go to a Canadian Tire and I get to go to a Wal-Mart 30 miles from my home," he says. "Although this may not seem like a big deal to many people, those stores and those services wouldn't be here if there wasn't a viable forestry and mining industry." He adds: "People make a good living. They have a good lifestyle."

And many of the forest products that North Americans take for granted, Smith notes, originate in the boreal. "We're a natural resource-rich country, and many of those natural resources are in the boreal forest. And they contribute millions and millions of dollars to our national, provincial, and local economies," he says.

And, increasingly, the people who live in the boreal are demanding a seat at the table when decisions are being made about the region's future. He notes that industry has a responsibility to ensure that development is "sensitive to the ecosystem itself, as well as the communities that are there, and some of these communities have been here for a very long time—like the indigenous communities."

"More and more," he says, "northerners want to have a say in the way their backyard is being developed."

Smith's conservation ethic has guided the way he lives his life away from work.

He and Connie moved from The Pas to Cranberry Portage six years ago, built a home at lake's edge, and plan to retire here. The area marks the dividing line between two major geological regions: the generally flat boreal plains, which feature abundant wetlands, and the more rocky landscape of the boreal shield.

Rather than cut down a lot of trees to gain an unobstructed view of the lake, the couple left the shoreline of shrubs, birch, and spruce in place. The tree cover not only protects their home from winter winds blowing in off the lake, but it also maintains habitat for forest critters such as squirrels and pileated woodpeckers.

"We wanted to retain as much of the natural forest around our home as possible," he says. "It drove our contractors nuts, but ... there's more thermal cover for retaining heat in the winter and keeping it cooler in the summer."

The Smiths' home includes a studio for Connie, whose stained-glass work focuses on creating nature scenes that reflect the boreal environment. The house is adorned with her depictions of local songbirds and waterfowl.

"What really attracts me, personally, to this area and why we both want to live here is the relative isolation. We are not city people. We don't like the hustle and bustle. Having a peaceful place that's relatively untouched is very important to us," Chris Smith says. "I always say the best part about cities is leaving them. We've said many times driving from the south that when we start to get into the bush, that it starts to feel like we're coming home."

*Sheldon Alberts is a Trust staff writer.*

# Frustrated—Even Angry— With Government

*In this election year, Americans' mistrust of Washington runs deep.*

BY JAMES TOEDTMAN

The deeper you peer into the Pew Research Center's pre-election report, *Beyond Distrust: How Americans View Their Government*, the more you realize that the voters in 2016 may be more interesting than the candidates.

Start with the first conclusion: Americans have a negative regard for the federal government—only 19 percent trust government to do the right thing all or most of the time, and elected officials are held in such low esteem that 55 percent of those polled for the report say ordinary Americans would do a better job of solving national problems.

At the same time, Americans have a long list of concerns they want addressed by the federal government—and in many cases, they like the way the federal government is dealing with them. Thirteen of the 17 federal agencies rated in the survey, for example, are judged positively. The public's top three priorities in the survey—keeping the country safe from terrorism, responding to national disasters, and ensuring safe food and medicine—also receive three of the four highest “good job” ratings.

Is there a disconnect?

The report has an answer—and a few more questions. Based on a national survey, with 6,000 interviews between August and October 2015, the analysis builds on previous Pew Research Center reports on the government's role and performance in 2010 and 1998. It also complements earlier polls conducted by the research center as well as American National Election Studies, Gallup, ABC News/*Washington Post*, and CBS News/*New York Times*, enabling the Pew study to track trust in government over the past five decades.

It is not a pretty picture.

The erosion of public trust in government began in the 1960s after peaking at an all-time high—77 percent—in 1964. “Within a decade—a period that included the Vietnam War, civil unrest, and the Watergate scandal—trust had fallen by more than half to 36 percent,” the new report notes.

After sliding to 20 percent in 1992, public trust reversed and climbed as high as 60 percent in the

weeks after 9/11 in 2001.

But that moment passed quickly. Since then, a profound decline in public confidence, fueled by two costly wars, a deep recession, and angry partisanship, has proceeded steadily and deeply.

“The basic attitudes didn't change much from 2010,” says Carroll Doherty, the Pew Research Center's director of political research. “What's different is the long period of distrust. You don't realize what a deep hole we're in. It's striking in this case.”

Stan Collender has witnessed the slide from a front-row seat. Since the 1970s and his first job as a Capitol Hill legislative aide, Collender has become one of Washington's top experts on the federal budget.

“What you have today is the reality that Washington is broken,” he says. “Shutdowns, debt limit stalemate, the House speaker quits, Congress disregards the budget, and [the Senate] won't consider a Supreme Court nominee. Nobody is calling it a shutdown, but that's what we have.”

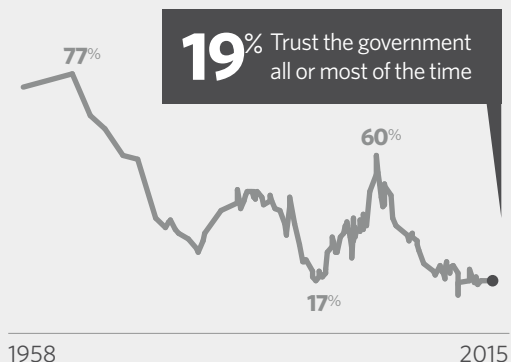
What we also have is a more sharply defined electorate, starting with polarization.

The survey reinforced earlier Pew findings about the divide between the political right and left. Although nearly one-third of those interviewed described themselves as independents, their views coincided with partisan views so consistently that the difference between “independents” and either of the two major parties has become hard to measure. “In virtually all situations, these Republican and Democratic ‘leaners’ have far more in common with their partisan counterparts than they do with each other if combined in a single ‘independent’ group,” the report says.

The partisan divide is even larger among Americans who regard themselves as politically engaged—those who are registered to vote, vote regularly, and follow political developments. Only 6 percent of engaged Republicans trust the government all or most of the time, while 22 percent say they never do. Among Democrats, the comparable percentages were 27 percent who trust the government and 7 percent who never do.

Distrust is accompanied by frustration and anger. A majority of Americans (57 percent) say they're

## Americans' overall views of the federal government are very negative



**74%** Most elected officials put own interests ahead of country's

**55%** Ordinary Americans would do better job solving problems

The Pew Research Center

frustrated with government, and another 22 percent say they're angry—a vote of no confidence that has lasted a decade now. That attitude is found especially among those over 50, who are more than twice as likely to be angry as those between 18 and 29 years old (29 percent versus 12 percent), and among whites (25 percent compared with 17 percent of Hispanics and 12 percent of blacks).

Then there's Congress. The country's legislative body received a 69 percent negative rating, and for the first time in over two decades of polling, Congress was more poorly rated by the party in control of Congress than by the minority party. Only 23 percent of Republicans have a favorable view of Congress, while 31 percent of Democrats have a favorable view. The Supreme Court didn't escape the public's disdain either, with 42 percent rating it unfavorably, the highest level in 30 years.

The public's confidence in its own political wisdom has also collapsed since the 1960s. There's been a steady decline of people in the U.S. with a good or great deal of confidence in the political wisdom of the American people, dropping from 77 percent in 1964, to 64 percent in 1997, to 57 percent in 2007, to 35 percent today.

And there's a larger picture. The distrust of the federal government coincides with the declining

public confidence in institutions that historically were the foundation supporting America's middle class—churches, unions, the entertainment industry, the media, and large corporations. These institutions provided jobs, protected workers, entertained and informed the nation, and were the places many people worshipped.

Despite this gloomy portrait, there were generally positive ratings for federal agencies, from the U.S. Postal Service to the Food and Drug Administration, including the FBI, the Social Security Administration, and the Environmental Protection Agency. The exceptions were the Department of Justice, the Department of Education, the Internal Revenue Service, and the Department of Veterans Affairs.

Pew's Doherty notes a significant finding in the survey, what he calls "common ground." Despite all the frustration, anger, and distrust, the survey revealed widespread support for the importance of the federal government in solving problems. Republicans and Democrats generally agreed on a federal role in protecting the nation from terrorism, responding to natural disasters, protecting food and medicine, and even managing immigration.

But that common ground collapses on safety net issues. "That's where you see the big differences" between Democrats and Republicans—especially engaged Republicans, Doherty says. "This is where the real fault lines are." Only 21 percent of engaged Republicans favor a government role in ensuring access to health care, compared with 83 percent of Democrats. There are similar gaps when Democrats and Republicans are asked about helping people get out of poverty and protecting the environment. There's a more than 20-point gap for ensuring quality education, setting workplace safety standards, ensuring basic income for people over 65, and strengthening the economy.

Does this period of prolonged distrust have a consequence? That's a concern for Dan Fagin, 2014 Pulitzer Prize winner for his book examining the chemical pollution of Toms River, New Jersey, and in particular the slow response of health and environmental regulators and the clusters of cancer cases that developed there. "The risk," he says, "is that this distrust becomes a self-fulfilling prophecy. We lose faith in government, and so we cut budgets of the regulatory agencies and the regulators can't do their jobs. So then we say, 'See? We told you so.'"

"I hope that somewhere out there we rediscover our faith in government," Fagin says. "I don't see any alternative."

*James Toedtman was Washington bureau chief for Newsday, managing editor of New York Newsday, and editor of the AARP Bulletin. He now directs the Flagler College Forum on Government and Public Policy lecture series.*

# Want to Save the Ocean? Watch and Learn

*A series of Pew videos with cartoonist Jim Toomey explains the science of marine conservation.*

BY JOHN BRILEY

Cartoonist Jim Toomey is standing on the floor of the ocean, broom in hand, flanked by coral heads, a sunken ship, and a concerned-looking shark, sea turtle, and octopus. Toomey, clad in street clothes, is sweeping up litter as he decries the amount of pollution fouling ocean waters.

Or at least that's what viewers see and hear when they watch an animated video explaining the problem of marine debris—scientists say there are 5.75 trillion pieces of plastic in the ocean—and its impact on our seas.

In reality, Toomey made his pitch comfortably above sea level, standing in front of a wall-size parcel of green cardboard in a dry, soundproof room at a creative studio in Maryland. He was indeed wielding a broom, but the rest of the "set" was added later, drawn into the video by Toomey himself.

Toomey, the creator of the cartoon strip "Sherman's Lagoon," and a team of Pew staffers produced the animated piece and nine others—a video glossary that explains marine conservation terminology to a general audience.

The 10 videos cover such critical topics as ocean acidification, which is dissolving the shells of clams, oysters, and other animals; illegal fishing, which accounts for up to \$23.5 billion worth of seafood annually; and the need to protect forage fish, oft-overlooked species that play a critical role in the marine food web but are in many places heavily overfished. Each segment runs about two minutes.

The pieces combine Toomey's drawing skills and passion for environmental conservation with state-of-the-art techniques that overlay video, animation, and special effects—like the school of cartoon fish that will swim past Toomey later in his discussion of marine debris.

The series is intended to make the science of environmental issues more accessible. Each video can stand on its own so that links can be embedded in a wide range of electronic content, from policy papers and fact sheets to news releases and blog posts.

This collaboration is the latest between Toomey and

Pew. The animated short "Sharks and Ocean Health," which he made to support Pew's shark conservation campaign, won best in animation at the Blue Ocean Film Fest in 2012. The next year, to boost Pew's Antarctic marine conservation work, Toomey devoted a week of "Sherman's Lagoon" installments to the need for a marine reserve in the Southern Ocean.

Toomey says he partners with Pew because the organization "understands the power of communication and knows how to use it strategically. Pew has enjoyed a lot of success in ocean conservation, and it's great to be a part of that."

He has also worked with the U.N. Environment Programme and the World Resources Institute on ocean advocacy projects, and frequently uses his syndicated strip to raise awareness of human impact on the seas.

"My love of the ocean started when I was very young," Toomey says. "The ocean appealed to my sense of wonder like nothing else did, even outer space, which was getting a lot more media attention in my childhood. The ocean has just as much variety and texture as the above-water world but was almost completely unexplored."

He got his scuba certification at age 13, started developing "Sherman's Lagoon" in his 20s, and, he says, "eventually realized that my comic strip could serve a greater good than just providing a laugh a day. If I could bring the ocean to everyone's breakfast table on a daily basis, in the funny pages, then maybe I could change public perceptions about the real ocean, which is the first step in shaping conservation."

The animated videos appear to be having the desired impact. The series has attracted a strong following online and has been picked up and reposted on dozens of marine conservation sites and influential social media accounts. Some of the videos include broad policy recommendations—such as setting catch limits to help protect forage fish—while others simply explain commonly used terms so that a general audience has a firmer grasp of issues.

For example, a piece on ocean governance uses



The series combines Jim Toomey's drawing skills and passion for conservation with techniques that include filming him in front of a green screen, allowing him to become part of his own cartoons.

a Wild West metaphor to show why rules are so hard to set and so easy to flout on the high seas. Another, on ecosystem-based fishery management, advocates for policies that consider habitat health, the balance between predators and prey, and broader environmental conditions when setting catch limits on a species.

Producing seamless animated videos required a series of painstaking steps. Pew staff wrote the scripts, hewing to Toomey's voice as a cartoonist and ensuring they were based in accepted marine science. A video team then suggested what Toomey might draw for each scene, and blocked out a shooting plan.

Toomey offered edits to the text and proposed visuals.

In many scenes, Toomey held a Magic Marker and pretended to draw in the air in front of him, so that when he added animation he would appear to be drawing

on a transparent screen. Toomey was filmed in front of a solid green background, known as a green screen, which allowed the team to later superimpose imagery, animation, and other effects.

Following each shoot, the video team eliminated the green background from the video and Toomey then took the footage to his home studio to add animation. "There was a lot of meticulous frame-by-frame animation in the scenes where I'm drawing with the Magic Marker," Toomey says. "It took a lot of work, but the drawing-in-thin-air technique ended up looking great."

You can see for yourself at [pewtrusts.org/cartooncrashcourse](http://pewtrusts.org/cartooncrashcourse).

*John Briley is a Trust senior writer.*

# Dental Therapists Close the Gap on Care

*Think of them as physician assistants for dental services, whose work in remote regions of Alaska is providing an example to the rest of the nation.*



BY MICHAEL CAUDELL-FEAGAN

The city of Bethel, some 6,000 people strong, is the hub for 56 villages in the delta formed by the Yukon and Kuskokwim rivers on the west coast of Alaska. No highways connect it to anywhere else; all of the necessities of modern life come in by plane or boat.

Surrounded by Alaska's vast spaces and rugged terrain, and bitten by harsh weather, residents here have challenges receiving not only the goods and supplies they need but also health care. Recently, under the auspices of the W.K. Kellogg Foundation, a group of dentists and health care professionals traveled to Bethel to check out a groundbreaking program that has helped alleviate an oral health care shortage by deploying a new class of providers called dental therapists—essentially dentistry's version of physician assistants.

Dr. Mary Williard, a public health dentist who directs the therapists' training for the Alaska Native Tribal Health Consortium, told the group that when she first came to the region in 1998, she found "a health crisis. ... Tooth decay among children was twice the national average, only 50 percent of kids at age 6 had access to dental care, and 59 percent of adults suffered from periodontal [gum] disease." To cope, the dentists in Bethel resorted to triage. "I would often end up taking kids to the hospital to do full mouth surgery, removing multiple teeth due to extensive decay," she said.

"Surgery was our only option when presented with 'bombed-out mouths.' I can do that quite well, but that shouldn't be the default," said Williard. "If we were going to spare children the experience of that pain and trauma, we needed to get to patients earlier."

Dental therapists provided the answer. While they are widely used across the globe to offer basic dental services—such as fluoride treatments, fillings, and simple extractions—they were unknown in the United States until the nonprofit Alaska Native Tribal Health Consortium, which provides health care to Alaska Natives, sent four students to New Zealand for training in 2003. When the quartet came back, they began work under Williard's supervision.

Therapists in training, who have high school diplomas and nominations from their tribes, spend two years mastering a limited scope of work (46 dental procedures, compared with the more than 500 that dentists may provide after eight years in college and dental school). When they finish, they return to their communities to work side by side with supervising dentists for a three- to six-month preceptorship, or residency. Once they have demonstrated their proficiency, they work under "general supervision," which means a dentist does not have to be on-site and has issued standing orders to authorize most services that the dental therapist provides. Some other procedures require consultation with a dentist, often via telehealth technology.

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"There is such a need, and it makes your heart heavy," said Ashley Sipary, a second-year student from Toksook Bay, Alaska. "On one of my first days, a child came in with abscesses on his front teeth. He had to be strapped to a papoose board and have every one of those teeth extracted. I don't want to see any kids go through that experience again. In the villages I serve, I can make sure they don't."

Thirty dental therapists now work in communities across Alaska, joined by five or more newly trained colleagues each year. The numbers convey their impact: Forty-thousand children and adults now have



**Bethel may be a fun place for a bike ride, but before dental therapists, the town's remoteness made dental care so rare that tooth decay among children was twice the national average.** *Bill Roth/Getty Images*

regular access to dental care, and all 6-year-olds in these communities have received dental services. On average, the therapists bring in \$150,000 to \$250,000 more per year than it costs dental clinics to employ them (accounting for salaries, benefits, travel, and supplies).

For patients, it has been a sea change. Before the dental therapist program was created, a dentist would visit a village for a few days once a year. Priority was given to pulling decayed and infected teeth for children, with no time for preventive care. For adults who could not get to a dentist, all that could be offered were pain medicine and antibiotics. Now, dental therapists are a fixture in these communities, providing preventive and restorative services; treating patients in their villages; diagnosing disease early, when it is easier to treat; and not only giving patients better care but also saving an estimated \$40,000 in travel costs per year per dental therapist.

While Alaska's isolation contributes to the challenges of providing treatment, communities throughout the United States have difficulty accessing care. According to the federal government, more than 5,000 communities across the country that are home to more than 48 million people are experiencing dentist shortages. The problem is worse for the more than 70 million children and adults relying on Medicaid: Two-thirds of the nation's dentists will not accept public insurance. Pew has helped lead efforts in the Lower 48 to expand the number of dental therapists, urging

legislatures to establish the new category of providers in law. Minnesota and Maine were the first to do so (see *Trust*, Fall 2015).

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A member of the fifth class of dental therapists in Alaska, Savannah Bonorden is part of a team that provides care in her hometown of Sitka and four villages that hug the state's southeastern coast. She said her experience demonstrates the immediate benefit and the long-term impact of their work. "In my second year, I met a lovely junior in high school. At that first encounter, she had significant decay in a tooth, and after sending an image to my supervising dentist, we determined it needed to be extracted.

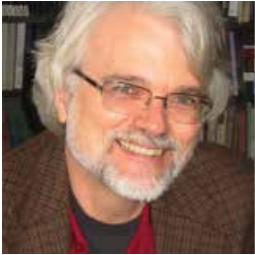
"She was so upset to lose her tooth. I spent time walking her through an exam of her entire mouth and educating her on how to avoid cavities through good oral hygiene," said Bonorden. "At her next appointment, she returned and had no decay. She was so grateful and told me, 'I've never known the importance of my oral health until you. My smile is great. I'm not in pain, and I'm happy.'"

*Michael Caudell-Feagan, who accompanied the dentists and health care professionals to Bethel, is a vice president of The Pew Charitable Trusts.*

# Why Are Younger Americans Less Religious Than Previous Generations?

While the U.S. public in general is becoming less religious, the nation's youngest adults are by many measures much less religious than everyone else. Indeed, one of the most striking findings in the Pew Research Center's recently released Religious Landscape Study is that millennials (young adults born between 1981 and 1996) are much less likely than older Americans to pray or attend church regularly or to consider religion an important part of their lives.

Recently, David Masci, a senior editor at the center, sat down with Michael Hout, a professor of sociology at New York University, to examine possible reasons millennials are generally not as religious as older Americans. Hout, who has spent years studying generational and religious changes in the United States, is the author or co-author of a number of books, including "Century of Difference: How America Changed in the Last One Hundred Years." He also is a principal investigator at the General Social Survey, which regularly examines changing attitudes in American society.



**By many measures of religious commitment, millennials are less religious than older Americans. Why do you think this is?**

Most age differences at any given time are the legacy of the times people

grew up in. Many millennials have parents who are baby boomers and boomers expressed to their children that it's important to think for themselves—that they find their own moral compass. Also, they rejected the idea that a good kid is an obedient kid. That's at odds with organizations, like churches, that have a long tradition of official teaching and obedience. And more than any other group, millennials have been and are still being formed in this cultural context. As a result, they are more likely to have a "do-it-yourself" attitude toward religion.

**Is what we're seeing with millennials part of a broader rejection of traditional institutions or is organized religion the only institution being affected?**

Oh, it is widespread. It's just easier to quantify religious change because we have such good data on it. But millennials' faith in nonreligious institutions also is weaker than they used to be. You see evidence of their lack of trust in the labor market, with government, in marriage, and in other aspects of life. General Social Survey data on confidence in the leadership of major institutions show that younger people particularly are not as confident as older adults when it comes to institutions like the press, government, and churches. But I think trust is not the whole story.

For one thing, there has been a long list of scandals in recent decades, such as Watergate, that have undone the reputations of major institutions the greatest generation trusted.

Millennials didn't grow up trusting these institutions and then had that trust betrayed like older Americans might have. They didn't trust them to begin with. And these institutions have let people, particularly young people, down.

**Are these trends likely to be long term?**

I'm reluctant to make predictions, but we can see how things have worked out lately. There used to be this view that there was a religious life cycle, that when you got older and married and had kids you got more active in organized religion. But that doesn't seem to be happening. In the past 20 years, we really haven't seen a lot of evidence of that cycle continuing.

With respect to the Catholic Church—lack of trust is fueled by the sexual abuse scandals in the church. What we see across all denominations is a gap emerging between politically liberal and moderate young people and leadership among conservative churches who are taking political positions on abortion, gay marriage, and other social issues.

When that happens, people who are politically liberal and not active in a particular church often put distance between themselves and organized religion by answering "none of the above" to questions about religious preference. Moderates show the same tendency, just not as clearly. As a consequence, in the most recent General Social Survey (2014), 31 percent of political liberals who were raised in a religion had no religious preference compared to just 6 percent of political conservatives.



# Millennials: Less prayer, less worship attendance, less belief in God

Percent of U.S. adults who say they...

	Silent generation (1928-1945)	Baby boomers (1946-1964)	Generation X (1965-1980)	Older millennials (1981-1989)	Younger millennials (1990-1996)
Pray daily	67	61	56	46	39
Attend services at least weekly	51	38	34	27	28
Believe in God	92	92	89	84	80
With absolute certainty	71	69	64	54	50
Believe in heaven	75	74	72	67	68
Believe scripture is the word of God	69	64	61	50	52
Believe in hell	57	59	59	55	56
Feel religion is very important in their lives	67	59	53	44	38

The Pew Research Center

## On a couple of measures of religiosity—namely belief in heaven and hell and willingness to share their faith with others—millennials do seem more similar to older Americans. Why is this the case?

I think you see higher levels of these things among millennials because they require very little in the way of institutional involvement. They also are harbingers of the “make your own way” or “do-it-yourself” religion that characterizes this group.

I think people assume that people who do not belong to an organized religious group reject religion altogether. But many “nones” believe in God and heaven. And spiritual experiences are still attractive for people who don’t go to church. Some people find God in the woods rather than in a church.

I have to admit that the data on “sharing faith” is a bit confounding. But I’m sure many millennials who said they share their faith don’t mean that they engage in missionary work. The choice of the word “share” is vague, so maybe some of them who answered the question thought of it in a more casual way, as in they discuss religion with others.

## Our research indicates that many millennials very much think of themselves in spiritual terms. What does being spiritual mean for younger adults?

It could mean a lot of things. It could be that they might attend multiple churches or that they might engage in spiritual activities of their own devising, like meditating

or experiencing nature. In a broader sense, it means that although they might not always embrace traditional religion, they’re still looking for those things that give them a sense of something larger than themselves.

It’s also important to remember that not everyone under 30 is a seeker on a spiritual quest. But still, a lot of them embrace the spiritual label. They often are moving away from what they know they’re uncomfortable with, namely established religious institutions that take firm stances and then fail to live up to them. So, [millennials] look to find context for living that’s still spiritual but that also reflects the ambivalence they feel about organized religion.

## Is some of this flight from organized religion by many young adults connected to distaste for doctrine and dogma?

Many young people feel an imperative to think for themselves and arrive at their own answers. They don’t look to institutions to find those answers for them. Some of them may look to institutions, including religious ones, to reinforce those beliefs and answers while at the same time still not wanting to join those institutions.

Thinking about Pope Francis is perhaps a good way of getting a sense of what I’m talking about. So far, young people haven’t been more likely to embrace Catholicism or join the Catholic Church because of Pope Francis. But he’s still very popular with the young—because they think he’s aligned with their own views and beliefs.

# Giving It All Away

*Philadelphia media entrepreneur and philanthropist Gerry Lenfest says his philosophy is to “give in your lifetime so you can see the impact, and let the future take care of itself.”*

BY DANIEL LeDUC

When H.F. Lenfest, who goes by Gerry, graduated from high school in Mercersburg, Pennsylvania, his father asked him what he planned to study in college. When he didn't have an answer, Dad made other plans for his son: Young Gerry went to sea, working aboard a tanker that picked up crude oil in Venezuela and delivered it to Aruba, then loaded refined oil and transported it to Copenhagen.

It was tough and dirty work. By summer's end, Dad met the tanker *New London* when it docked in Philadelphia with a question for his son: Ready for college now?

The summer of toil had given the young Lenfest a new focus, a revitalized work ethic, and a passion for the sea—all traits that would play central roles in a life now in its eighth decade.

After graduating from Washington and Lee University, Lenfest served as a naval officer aboard a destroyer that operated in the Atlantic, Caribbean, and Mediterranean, furthering his appreciation for the ocean. And after law school at Columbia University, he joined the white shoe firm Davis Polk & Wardwell on Wall Street. One of the firm's clients, E. Roland Harriman of the famed railroad and finance family, made an observation to the young lawyer that would have great influence on him later in life as Lenfest made his own fortune. “When you have this much money,” Harriman told Lenfest, “it's not fun; it's responsibility.”



From Wall Street, Lenfest moved to Philadelphia to join Triangle Publications, a media company owned by Walter Annenberg. Triangle's holdings included *TV Guide*, *The Philadelphia Inquirer*, *Seventeen* magazine, television stations, and cable television systems. Lenfest served as counsel to Annenberg and then publisher of *Seventeen* and was in charge of Triangle's cable television operations but always had the desire to own his own company—so when Annenberg decided to sell off some of the cable business, Lenfest found two investors and bought in.

That was in 1974, and the cable system had 7,600 subscribers. By 2000, when he sold Lenfest

Communications to Comcast Corp., it had 1.3 million customers in one cluster of contiguous cable television systems in Pennsylvania, New Jersey, and Delaware. His \$1.2 billion in profits from the sale has allowed Lenfest and his wife, Marguerite, to launch a wave of philanthropy—from generous scholarship programs for high school students in rural Pennsylvania communities, to civic and arts institutions in Philadelphia, to new buildings and endowments at his alma maters, to a groundbreaking environmental initiative with Pew called the Lenfest Ocean Program.

Most recently, he gave *The Inquirer*, which he and several investors purchased in 2014, to the nonprofit Philadelphia Foundation in the hope that the move would ensure that the newspaper remains a stable and independent source of information.

Whatever he and his wife have chosen to support, over the past decade and a half, they have followed three guideposts for their philanthropy.

The first is that they did not want a family foundation, which they feared could over time be a source of conflict among the family members; instead, each of their three children has his or her own foundation and none serve on each other's boards. Another principle is that the couple's foundation staff and board are made up of professional advisers—not friends or family members.

And finally, they did not want a foundation that lasted in perpetuity, preferring to focus on needs they see now. The plan is for their assets to be exhausted within 10 years after their deaths. “The philosophy is to give in your lifetime so you can see the impact,” Lenfest says, “and let the future take care of itself.”



Over the years, Pew's deep roots in Philadelphia offered opportunities for the Lenfests to collaborate with Pew on a number of civic initiatives, such as the effort to save the famed Barnes Foundation, which was struggling financially, and its art collection.

These collaborations led to Lenfest meeting Joshua S. Reichert, Pew's executive vice president for environmental projects. Lenfest had already endowed a research center on sustainable energy at Columbia.



**Gerry Lenfest saw a need for sound scientific research to guide policymakers about the marine environment; so with his wife, Marguerite, he created the Lenfest Ocean Program and asked Pew to manage it.** *Katye Martens/The Pew Charitable Trusts*

In his conversations with Reichert, he observed that policymakers charged with protecting the marine environment needed sound scientific research to guide their decisions.

So in 2004, he and Marguerite created their namesake ocean program and asked Pew to manage it on their behalf. The Lenfest Ocean Program supports research by leading marine scholars around the globe with a focus on the environmental, economic, and social impact of fishing, fisheries management, and aquaculture. The research is published in peer-reviewed journals, summarized for policymakers and the media, and the scientists frequently present their findings to influential groups.

The program has supported dozens of reports from researchers around the world. Some of the most recent have shown how ignoring ocean warming has hampered New England cod recovery, how older big fish can counteract the effects of overfishing, and how satellite data may help fishermen avoid endangered species.

"The Lenfest Ocean Program has provided a model for how sound science can guide and improve public policy," says Reichert. "We're immensely grateful for

our partnership with Gerry and Marguerite, who share a respect for independent, scholarly research."

For their part, the Lenfests have welcomed the opportunity to serve the sea. Lenfest says "we feel honored to be associated with Pew." He and Marguerite recently renewed their support for the Lenfest Ocean Program, which has leveraged further investment by Pew, allowing Reichert and program director Charlotte Hudson to develop a new strategy for its future. "They've earned my trust," Lenfest says.

Surrounded by models of his sailboats and classic big ships in his office in suburban Philadelphia, Lenfest is still working six days a week. But these days he allows himself to think a bit about the legacy of his giving. The feeling is simple, he says: "It's the satisfaction of accomplishing some good things in my lifetime."

*For more information about philanthropic partnerships at Pew, please contact Senior Vice President Sally O'Brien at 202-540-6226 or [sobrien@pewtrusts.org](mailto:sobrien@pewtrusts.org).*

*Daniel LeDuc is the editor of Trust.*

# The Pew Research Center: Calling More Cellphones

*As more people rely solely on mobile phones, pollsters need to keep up so that surveys stay accurate.*

The Pew Research Center will increase the percentage of respondents interviewed on cellphones from 65 percent to 75 percent in most of its 2016 telephone surveys. The center is making this change to ensure that its survey samples properly represent the now roughly half (47 percent) of U.S. adults whose only phone is a cellphone.

Nine-in-ten Americans have a cellphone, and the share of adults who are cellphone-only has steadily increased since 2004, the year the government began tracking the size of this group. To keep pace with the public's changing habits and lifestyle, center researchers have increased the percentage of respondents interviewed by cellphone nearly every year since 2009.

Despite the prominence of cellphones in public opinion polling, many outside the field are still unclear what role these devices play in surveys.

Kyley McGeeney, a research methodologist at the Pew Research Center, explained more in an interview:

### **Do survey researchers really call cellphones? Many people may not know that's possible.**

Absolutely. All major survey organizations that conduct telephone surveys include cellphones in their samples. They have to, because the kinds of people who rely only on a cellphone are different from those

reachable on a landline, even though being cellphone-only is becoming more mainstream.

Cellphone-only individuals are considerably younger than people with a landline. They tend to have less education and lower incomes than people with a landline. They are also more likely to be Hispanic and to live in urban areas. For this reason, excluding cellphones from a poll—or not including enough of them—would provide a sample that is not representative of all U.S. adults.

### **Aren't cellphone numbers unlisted—how do you get the numbers to call?**

It's true that cellphone numbers are not listed in a directory such as the white pages. To overcome that, companies that sell telephone survey samples have to create a list of all possible cellphone numbers in the United States.

They start with the fact that certain area codes and exchanges are dedicated only to cellphones. For area code and exchange combinations that include both landlines and cellphones, additional work is done to identify the specific blocks of numbers assigned to cellphones. Once the relevant area codes and exchanges (and, if necessary, specific blocks) are

### **As more Americans go mobile, Pew Research Center will conduct more survey interviews via cellphone**

**47%** of U.S. adults living in households with only wireless telephone service in 2016

**75%** of interviews conducted on cellphones in typical Pew Research Center surveys in 2016

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identified, the sample vendors append all possible last four digits to each. For instance, if they know the 202 area code and 555 exchange within that area code are only used for cellphones, then they can add every number from 202-555-0000 to 202-555-9999 to their list. They then repeat that with every area code and exchange combination known to be used only for cellphones to create a very long list of all possible cellphone numbers in the United States. From that list, telephone sample vendors draw a random sample of phone numbers to be used for a particular poll.

**Many people have a cellphone number with an area code that does not represent where they actually live. How do you know you're getting a good sample if the location of a person does not match their cellphone?**

What you're describing is a phenomenon known as "under-coverage" and "over-coverage." This isn't an issue in national polling, since virtually every adult we reach in the U.S. is eligible for the survey, regardless of what location we thought we were calling. However, for state and local polling, under- and over-coverage can be a big issue. For example, in a recent national poll, 8 percent of people interviewed by cellphone in California had a phone number from a state other than California. Similarly, of the people called on a cellphone number associated with California, 10 percent were interviewed in a different state.

Researchers can attempt to correct this problem by attempting to merge in the commercially available billing ZIP code or full address associated with the cellphone number, though this is not available for all cellphone numbers.

**Why don't pollsters include more cellphones in their surveys?**

The biggest reason is cost. According to federal regulations, cellphones have to be manually dialed by an interviewer, whereas landlines can be dialed automatically using a device known as an autodialer. Manually dialing cellphone numbers takes time, which increases interviewing costs. Each cellphone interview can cost almost twice as much as each landline interview. For this reason, some pollsters choose to either dial fewer cellphones or to exclude them from their sample altogether.

## Cellphone-only respondents are demographically distinct

Demographic profiles of respondents with only a cellphone versus all other respondents

	Cellphone only	All other respondents
Male	58%*	49%
Female	42%*	51%
White, non-Hispanic	62%*	76%
Black, non-Hispanic	10%	9%
Hispanic	18%*	8%
18-29	28%*	8%
30-49	37%*	21%
50-64	24%*	33%
65+	10%*	36%
High school grad or less	31%*	27%
Some college/ associate degree	29%	29%
Bachelor's degree or more	39%*	44%
Urban	43%*	30%
Suburban	40%*	52%
Rural	16%*	18%
<b>Family income</b>		
Less than \$30,000	32%*	22%
\$30,000-\$74,999	33%*	31%
\$75,000 or more	29%*	37%

\* Statistically significant difference between cellphone-only and all other respondents.

Survey conducted Aug. 27-Oct. 4, 2015, The Pew Research Center

# RETURN ON INVESTMENT

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*The Pew Charitable Trusts applies a rigorous, analytical approach to **improve public policy, inform the public, and invigorate civic life**, as these recent accomplishments illustrate.*

## IMPROVING PUBLIC POLICY



**Local fishermen along the coast of Somalia and elsewhere suffer because illegal fishing robs them of their livelihoods—while also undermining scientific assessments of fisheries.** *Shashank Bengali/Getty Images*

### **More nations, including the U.S., sign agreement to control illegal fishing**

On Nov. 5, President Barack Obama signed into law the Illegal, Unreported, and Unregulated Fishing Enforcement Act of 2015, which allows for the United States to implement the Port State Measures Agreement—an international accord by which nations agree to adopt additional controls at their ports to prevent the entry of illegal seafood.

Pew sought passage of this legislation that aligns U.S. law with the treaty ratified by the Senate in 2014.

Pew also helped facilitate the signing of the accord by governments in Palau, Mauritius, Seychelles, Mozambique, South Africa, South Korea, and Saint Kitts and Nevis (a two-island country in the West Indies).

By spring 2016, 21 governments had ratified the agreement. Pew is working to persuade a total of 25 countries to ratify the treaty, which is required for it to take effect around the globe.

## **Manitoba approves land-use policy to protect boreal**

In November, the Manitoba government committed to fund and implement indigenous-led land-use planning as the cornerstone of its boreal conservation policy, covering 140 million acres. In other land-use plans across Canada, First Nations have strictly protected an average of two-thirds of their land base. Pew's boreal team has been working in Manitoba for more than a decade and partnered directly with local First Nations and conservation organizations on land-use planning there, and will continue to work with these groups to successfully implement this new policy. With this commitment, Pew's boreal initiative will have played a role in securing actions to safeguard approximately 850 million acres of Canada's boreal forest and is nearing its goal of protecting 1 billion acres, with one-half strictly protected and the remainder subject to sustainable development standards.

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## **First-of-its-kind electronic tracking of bluefin tuna**

At its annual meeting in November, the International Commission for the Conservation of Atlantic Tunas agreed that global catch and trade of Atlantic bluefin tuna will be tracked by a new electronic catch documentation system—a first for any tuna species. The electronic system, intended to be fully operational by May, replaces a paper-based program and is designed to help prevent illegal catch and trade of Atlantic bluefin tuna and its products in the international market. Pew has supported and helped shape the development of this system since 2011. The commission also agreed to develop a new management process for Atlantic bluefin and other tunas to institute long-term objectives and pre-established, science-based conservation rules that will be triggered if the population dips below healthy levels—which has been a major goal of Pew's global tuna conservation initiative.

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## **More funding for military clean energy programs**

In December, Congress passed an omnibus spending bill for fiscal year 2016 that increased funding for clean energy research and development for the Department of Defense, the largest institutional energy user in the world. The new budget includes \$45 million for an advanced biofuels program, which increased the program's total funding to \$470 million. An additional \$60 million was allocated to projects focused on alternative energy research, energy efficiency, and reduced emissions by the Army, Navy, and Air Force. Promoting defense programs for research and development of clean and efficient energy technologies is a key goal of Pew's clean energy project.

## **Illinois increases access to dental sealant programs**

After legislative passage with overwhelming margins, Governor Bruce Rauner (R) on Dec. 17 signed into law a change to the Illinois Dental Practice Act, which enables public health hygienists to offer nearly their entire scope of practice—without a prior patient exam by a dentist—to patients in schools, Head Start centers, community health centers, and other settings. In Illinois, Pew worked with a coalition of advocates, including the Illinois Dental Association, to support this legislation as part of efforts to expand access to school-based sealant programs throughout the nation.

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## **Voting information expands for 2016 elections**

Pew's Voting Information Project (VIP) has significantly expanded support for state and local elections in 2016. Voters will have access to polling and ballot information for the 2016 general election and more than 70 other races. VIP's tools will cover presidential primaries in 32 states and statewide primaries in 41 states, as well as runoffs and dozens of local and municipal elections. In 2014 and 2015, VIP worked in Arizona, California, Idaho, Illinois, New Jersey, Ohio, and West Virginia to build systems to collect polling place and ballot information for all elections.

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## **FDA finalizes new rules governing food safety oversight**

As mandated by the five-year-old Food Safety Modernization Act, the FDA on Nov. 13 released final rules governing the safety of fresh produce and food imports. For the first time, there will be mandatory, enforceable, nationwide standards aimed at minimizing contamination of fruits and vegetables intended to be eaten raw. Pew worked to win passage of the landmark act, signed into law in 2011, which marked the most significant changes to food safety oversight since the Great Depression.

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## **Online voter registration extends to Alabama, Alaska, Iowa, and New Mexico**

In January, Alabama, Iowa, and New Mexico transitioned to online voter registration, bringing the total number of states that have adopted the new system to 30, plus the District of Columbia. Alaska's online registration went live in late December. Fueled by Pew's research and advocacy, online voter registration has gained popularity with citizens and election officials across the country, marking significant progress toward Pew's goal of improving the security, accuracy, and cost-effectiveness of election administration.

### Pope Francis sparks more positive views of the church

Following Pope Francis' September visit to the United States, the Pew Research Center found that the pope has generated goodwill toward the Roman Catholic Church among many people across the ideological spectrum.

Twenty-eight percent of U.S. adults say they have a more positive view of the church because of Pope Francis. Far fewer—just 6 percent—say they have a more negative view because of the pope. Improved

views of the church are especially apparent among self-identified liberals and moderates, as well as among Democrats. Nearly 4 in 10 liberals (39 percent) say they have a more positive view of the church because of Pope Francis, dwarfing the 4 percent who say they have a more negative view of the church by a 10-1 margin. Among conservatives, the ratio of those with a more positive view of the church (22 percent) to those with a more negative view (10 percent) is closer to 2-to-1.

**Pope Francis made his first visit to the United States last September, with his stops including the Festival of Families in Philadelphia.** *Justin Sullivan/Getty Images*





## Concern about climate change knows no borders

In November, as world leaders gathered in Paris to negotiate a climate change agreement, the Pew Research Center released a survey conducted in 40 countries that found a global consensus that climate change is a significant challenge. The center's director of global economic attitudes, Bruce Stokes, briefed numerous officials, including those at the World Bank, the U.S. Department of State, embassies of European Union countries, the U.S. embassy in Paris, and the French foreign ministry. The report received wide global coverage and was featured on the front page of the European edition of the *International New York Times*.

## Family economic circumstances influence parenting

In December, the Pew Research Center took a broad, demographic-based look at American families and found that differences in parenting, such as the degree of involvement in children's lives, are linked more to economic circumstances and changing family structure than to philosophies or values. For example, the survey

of 1,807 parents with children under age 18 found that higher-income parents are nearly twice as likely as lower-income parents to rate their neighborhood as an "excellent" or "very good" place to raise kids (78 percent versus 42 percent). *The New York Times* covered the study with a front-page story; online, it was the *Times'* most emailed article and second-most viewed article on the day of publication.

## Most people say religion and science often at odds

In October, a Pew Research Center report on the public's views of a range of science-related topics and religious attitudes found that a majority of the public (59 percent) says science and religion often conflict; 38 percent say science and religion are mostly compatible. In addition, the report found that those who are not religiously observant are most likely to see a conflict between science and religion. Seventy-three percent of adults who seldom or never attend religious services say science and religion are often in conflict, while half of adults who attend religious services at least weekly say science and religion are often in conflict.

## INVIGORATING CIVIC LIFE

## How charter school governance in Pennsylvania and Philadelphia measures up

To gain perspective on charter school governance in the School District of Philadelphia and the state, Pew's Philadelphia research initiative compared the rules under which charters operate in Pennsylvania with those in 15 other states. The analysis, which was released in December, showed that although regulation varies among states, Pennsylvania's approach is similar to that of a number of other states. But the study also found differences, including the low percentage of charters Pennsylvania has closed in recent years and the high percentage of noncertified teachers the state allows charters to employ.

## City breaks ground for Bartram's Mile on Schuylkill River Trail

In November, the city of Philadelphia broke ground on Bartram's Mile, a development set to transform a stretch of vacant land along the city's Schuylkill River into a green outdoor space. Planned features include

outlook areas, lighting, and signage along a path that will link the existing Schuylkill River Trail—recently voted the nation's top urban trail by readers of *USA Today*—with Bartram's Garden, the country's oldest living botanical garden. Scheduled for completion in late 2016, the project is a partnership of the state, city, Pew, and the William Penn, Knight, and Lenfest foundations.

## Additional Pew Center for Arts & Heritage highlights

- Owing to overwhelming public response, a second finale event was added in Philadelphia to Zydeco Crossroads, the 16-month showcase of the musical genre with roots in Louisiana's Creole culture. Partially funded by the Pew center, the celebration of Zydeco music was a joint project of WXPB-FM in Philadelphia and KRVS-FM Radio Acadie in Lafayette, Louisiana. The series featured live shows, film screenings, radio specials, and a multimedia website.
- Gabriel Quinn Bauriedel, co-founder of Philadelphia's Pig Iron Theatre Company and 2002 Pew arts fellow, was one of 10 U.S. winners of the 2015 Eisenhower Fellowship, an award that connects leaders from

the public, private, and nonprofit sectors with a network of peers around the globe. Through the fellowship, Bauriedel will travel to Spain and Russia to learn from theater companies that have launched professional training programs—knowledge that can then be applied to the curriculum of the Pig Iron School for Advanced Performance Training.

- *Artnet*, a leading resource for the international art market, named 2012 Pew arts fellow Alex Da Corte's "Die Hexe" (German for "The Witch") one of the three most memorable New York gallery shows of 2015. The publication called the exhibition, which transformed rooms in an Upper East Side gallery into unsettling surreal environments, "a technical tour de force."

- *Publisher's Weekly* reviewed 2015 Pew arts fellow Brian Teare's book of poetry, *The Empty Form Goes All the Way to Heaven*. The reviewer called the collection, written during a period of debilitating illness, "powerful" and "deeply affecting, intellectually generous, and formally dazzling."
- 2010 Pew arts fellow Jenny Sabin, principal of Jenny Sabin Studio and director of the Sabin Design Lab at Cornell University's College of Architecture, Art, and Planning, won the IVY Innovator Award for Design, which recognizes the "next generation of leading minds" in the United States in the fields of technology, film, and design. Sabin's experimental architecture work applies biological and mathematical ideas to structural design.



Visitors to The Franklin Institute learn more about how the Earth is changing through multimedia games and a weather prediction reporting station. R. Kennedy for Visit Philadelphia™

### Pew awards Advancement grant to The Franklin Institute

The Pew Center for Arts & Heritage has awarded its sixth advancement grant, this one supporting The Franklin Institute—one of the leading science centers in the country and the most visited museum in Pennsylvania. The \$500,000 grant will fund a two-year digital media initiative that will enhance the organization's interpretive programming and audience

engagement, both at the museum itself and online. Elements of the initiative include a new approach to science storytelling that helps audiences understand how scientific discovery transforms people's lives, and the launch of a mobile platform that explores how museums can embrace the future of virtual reality and experiential media.

# Change in Medicare Can Help Stem Abuse of Opioids

BY CYNTHIA REILLY

In a political climate in which the two major parties don't always see eye to eye, one issue is bringing them together: Republicans and Democrats agree that we must address the tragedy of prescription drug abuse.

With 44 people dying every day from overdoses of oxycodone, hydrocodone, and similar opioid pain relievers, there is growing awareness that misuse of these drugs can affect almost anyone.

Presidential hopefuls from both major parties have told personal stories about the terrible toll this epidemic has taken on family, friends, and colleagues, and some have proposed detailed policies to address prevention and treatment of abuse. And Congress is considering a number of legislative proposals to augment existing prevention and treatment strategies.

What other steps can we take now to save lives by preventing substance abuse before it starts?

Opioid abuse frequently begins when patients with pain seek relief from multiple prescribers and pharmacies at the same time. Because providers often don't know that the people they're treating are seeking—or have already sought—help elsewhere, patients may obtain and take unsafe amounts of prescription pain relievers, putting them at increased risk for addiction and overdose.

But there are tools that can help lower the risk of abuse and protect patients from harm. Many health plans use patient review and restriction (PRR) programs to identify patients receiving opioids from multiple prescribers. These drug management programs can lower the risk of overdose by providing coordinated care from designated doctors and pharmacies while ensuring that patients have access to the pain relief they need. (People who need high doses of pain medication, such as those with cancer or in hospice, are exempt from PRR programs.) Patients can still choose their doctors and pharmacies.

PRRs have the potential to save lives and lower health care costs. In Oklahoma, for example, Medicaid patients in a PRR program used fewer narcotic medications, decreased their visits to multiple pharmacies and physicians, and made fewer trips to emergency departments. In Ohio, opioid doses were

reduced by 40 percent among patients enrolled in the state's Medicaid PRR program.

But even though PRRs work for Medicaid and private insurance plans, federal law prohibits their use for Medicare recipients—even though these patients are at

*Drug management programs can lower the risk of overdose by providing coordinated care from designated doctors and pharmacies while ensuring that patients have access to the pain relief they need.*

risk of harm from overuse or misuse of prescription pain relievers. In 2011, nearly a quarter of a million Medicare beneficiaries took potentially life-threatening doses of opioids for 90 or more consecutive days.

Fortunately, support for PRRs in Medicare is gaining ground. The House of Representatives has overwhelmingly voted to lift the restriction on PRRs in Medicare as part of a larger health care measure; similar bipartisan legislation has been introduced in the Senate. Andy Slavitt, acting administrator of the Centers for Medicare & Medicaid Services, said these drug management programs would be very helpful in stemming abuse. President Barack Obama signaled his support for these drug management programs when he proposed establishing PRRs in Medicare as part of his 2016 budget request to Congress.

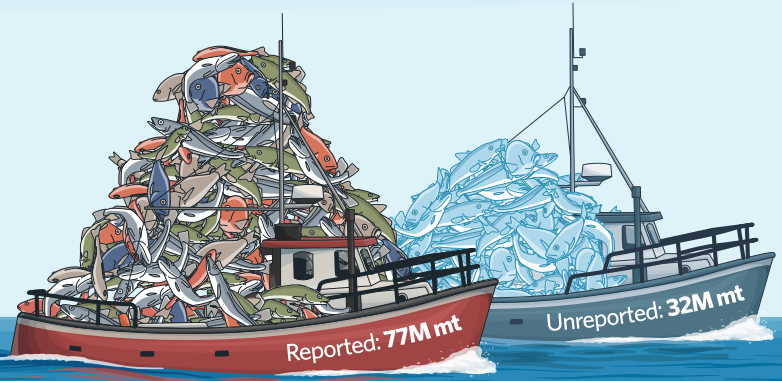
PRRs are a proven strategy that can help prescribers and pharmacists provide better care for their Medicare patients and stem the troubling trend of overdose deaths. And because protecting patients from harm is an idea we can all agree on, it's time for Congress to pass legislation granting Medicare the authority to use PRRs.

*Cynthia Reilly directs Pew's prescription drug abuse project. This column originally appeared in The Philadelphia Inquirer.*

# How much fish are we really catching?

The short answer: More than we thought

Artisanal, subsistence, and illegal fishing are often not reported in official statistics—obscuring the true extent of fishing worldwide. Scientists estimate that global catch is 109 million metric tons (mt) annually—with new research revealing that **30 percent of that catch is going unreported**.

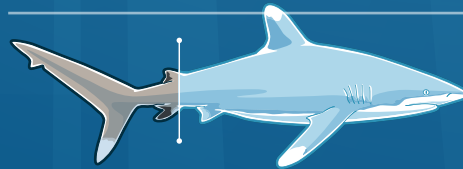
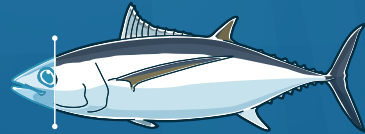


## Wild numbers

Managing fisheries sustainably is difficult without accurate catch data.

**From 1950 to 2010**, landings of economically important fish such as tuna and sharks were underreported, according to the new study led by the Sea Around Us.

Global tuna landings were **9%** higher than reported.



Global shark catch was **60%** higher.



## The scale of unreported catch

Every year, the official data underestimate global fish catch by about **32 million mt**—that's more than the weight of the **human population of the U.S.**

**9%** The share of fish estimated to be discarded each year.

Annually, **25%** of global fish catch comes from small-scale fishing, mostly for food.

## Catchall

In the new study, released in January, scientists used an array of sources and methods to assemble a more complete picture of the world's fisheries. Called "catch reconstruction," this approach allows countries to gain a better understanding of catch and provides an important tool for building more profitable and sustainable fisheries.



**BREAKING:** Huge new marine park named. See photos, share the news.



**Fact:** 1 in 5 fish caught is fished illegally. Let's change that.



Our National Park Service is about to turn 100—its maintenance backlog is already past \$11 billion.

# Follow @PewEnvironment on Twitter.

Don't miss our daily conservation news, facts, and photos.



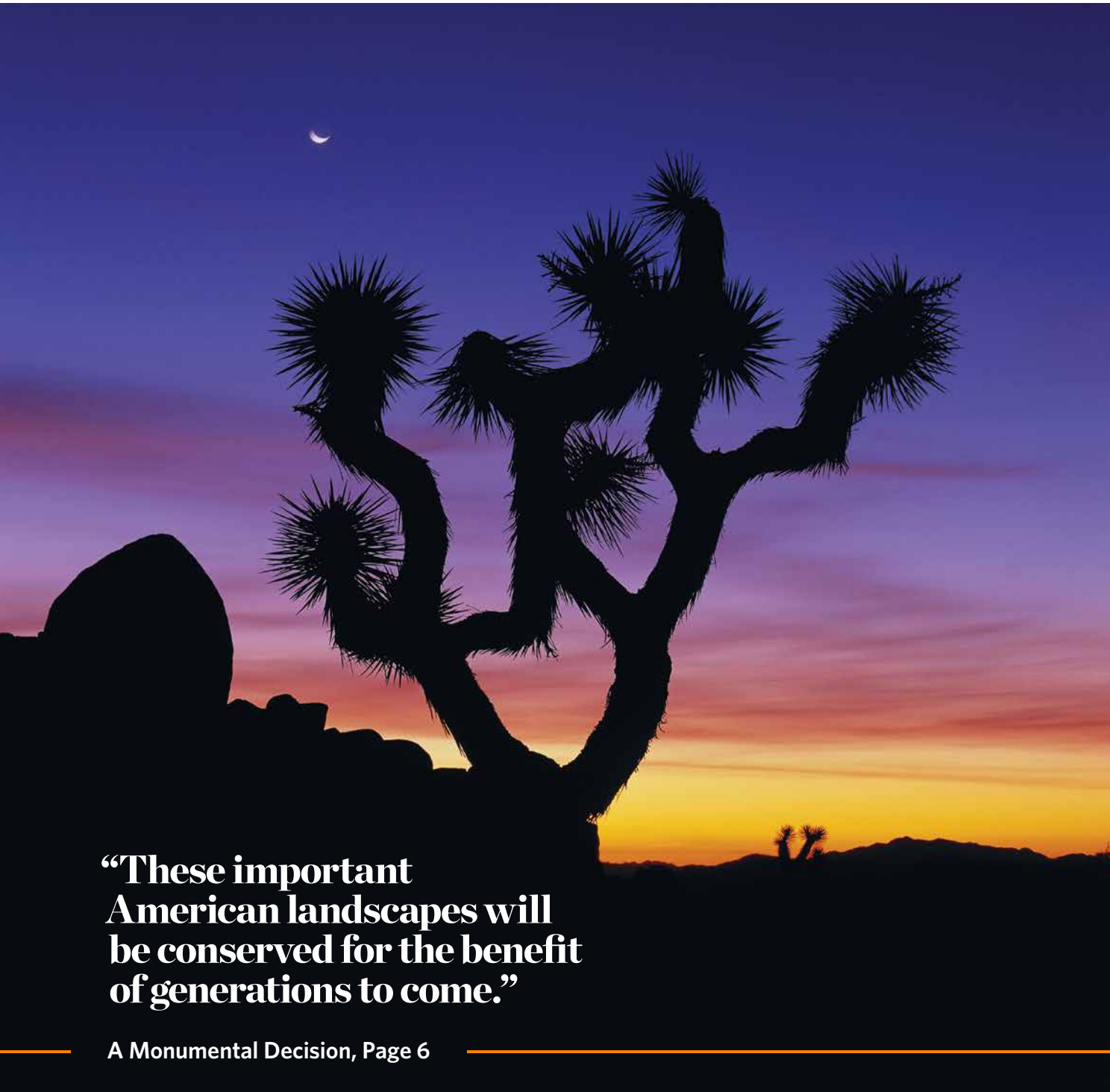
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**“These important  
American landscapes will  
be conserved for the benefit  
of generations to come.”**

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**A Monumental Decision, Page 6**

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