**1. Carbon concentrations hit 400ppm while the IPCC sets global carbon budget:**

For the first time since our appearance on Earth, carbon concentrations in the atmosphere [hit 400 parts per million](https://news.mongabay.com/2013/0511-hance-400-ppm.html). The last time concentrations were this high for a sustained period was 4-5 million years ago when temperatures were 10 degrees Celsius higher. Meanwhile, in the slow-moving effort to curb carbon emissions, the Intergovernmental Panel on Climate Change (IPCC) crafted a [global carbon budget](https://news.mongabay.com/2013/1001-gen-carbon-budget.html) showing that most of the world’s fossil fuel reserves must be left untouched if we are to avoid catastrophic climate change.

**2. China begins to tackle pollution, carbon emissions:**

As China’s environmental crisis worsens, the government has begun to unveil a series of [new initiatives](https://news.mongabay.com/2013/0819-hance-china-air-pollution.html) to curb record pollution and cut greenhouse emissions. The world’s [largest consumer of coal](https://news.mongabay.com/2013/0708-coal-life-expectancy.html), China’s growth in emissions is [finally slowing](https://news.mongabay.com/2013/1031-hance-2012-emissions.html) and some experts believe the nation’s emissions could peak within the decade. If China’s emissions begin to fall, so too could the world’s.

**4. Zero deforestation pacts:**

*Rainforest in Sumatra. Photo by: Rhett A. Butler.*

Two major commodity producers in Asia announced zero deforestation pacts, while several buyers also established safeguards for commodity sourcing. Both [Asia Pulp & Paper](https://news.mongabay.com/2013/0205-app-forest-policy.html), a paper products giant widely condemned by environmentalists for its destructive forest practices, and [Wilmar](https://news.mongabay.com/2013/1205-wilmar-zero-deforestation.html), a Singapore-based agribusiness giant that accounts for 45 percent of global palm oil production, committed to progressive forest policies that exclude conversion of forests with more than 35 tons of above ground biomass, peatlands, and habitats with high conservation value.

**5. Typhoon Haiyan:**

The tropical storm that hit the Philippines in November—Typhoon Haiyan—was the largest storm to make landfall on record. Killing over 5,000 people in the country, it was also the Philippines’ deadliest. While the links between tropical storms and climate change remain complex, scientists believe rising global temperatures will [make storms like Haiyan](https://news.mongabay.com/2013/1112-hance-sano-deniers.html) more common and, coupled with rising seas, more devastating. Coming at the open of the UN Climate Summit in Warsaw, [the typhoon overshadowed](https://news.mongabay.com/2013/1111-hance-sano-fast.html) what was largely an unambitious meeting.

**6. Elephant and rhino massacre continues:**

Large numbers of [elephants](https://news.mongabay.com/2013/1202-hance-elephant-poaching-2012.html) and endangered rhinos continued to be slaughtered for their ivory and horns. South Africa reported [record losses](https://news.mongabay.com/2013/0929-rhino-poaching-record.html) of rhinos in its protected areas, while several high profile poaching events made [international headlines](https://news.mongabay.com/2013/1201-interpol-raids-africa.html). In response, NGOs and the U.S. announced [a major new initiative](https://news.mongabay.com/2013/0927-gen-clinton-elephants.html) to combat poaching.

**7. Burning haze over Southeast Asia:**

*A Greenpeace activist bears witness to forest destruction in Riau Province, Indonesia. © Ulet Ifansasti / Greenpeace.*

Air pollution from peat fires in Sumatra [returned with a vengeance](https://news.mongabay.com/2013/0617-haze-returns-to-singapore-2013.html) to Singapore and Malaysia. Air pollution indexes reached [record-high levels in several cities](https://news.mongabay.com/2013/0624-greenpeace-photos.html), sparking a row between Indonesia, which had failed to ratify a transboundary haze agreement, and its neighbors, whose companies played a major role in the burning. Analysis by World Resources Institute (WRI), an NGO, found that [nearly half of fires occurred](https://news.mongabay.com/2013/0710-haze-peatland-burn-scars.html) in timber and oil palm concessions. Only 5 percent of fires burned in protected areas and selective logging concessions.

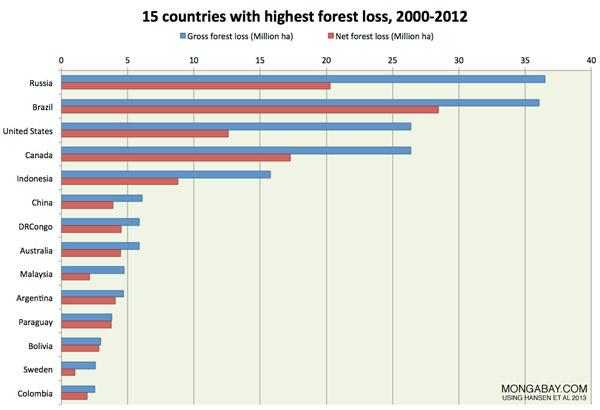
**8. Getting tough on coal:**

Many of the world’s biggest financial players are turning against carbon-heavy coal. This year, the World Bank, the U.S., the U.K., and several Scandinavian countries have all pledged to no longer fund traditional coal plants abroad, representing a sea change in energy financing. Meanwhile, Christiana Figueres, the head of climate change at the UN, [told a global coal summit](https://news.mongabay.com/2013/1119-hance-figueres-speech.html) that the industry would have to undergo drastic changes if it’s to maintain a role in the future of energy.

**9. Amazon deforestation jumps:**

As expected, Brazil announced that deforestation in its part of the Amazon rainforest increased significantly over last year’s record-low levels. Preliminary data suggest a [28 percent rise](https://news.mongabay.com/2013/1114-brazil-amazon-deforestation-2013.html) to 5,843 square kilometers (2,256 sq miles). More than three-fifths of deforestation occurred in Pará (41 percent) and Mato Grosso (20 percent). Environmentalists blamed last year’s changes to the country’s code for the increase, but [other analysts](https://news.mongabay.com/2013/1116-nepstad-why-is-deforestation-climbing.html) pointed to other factors including a weakening real, lack of incentives for farmers and ranchers to curb deforestation, and rising commodity prices. Deforestation in 2013 was nonetheless more than 80 percent below the 2004 peak.

**10. Google’s forest map:**



A team of researchers unveiled a long-awaited map of the world’s forests. Powered by Google, the map shows change in forest cover between 2000 and 2012, including large-scale forest loss in Russia, Brazil, United States, Canada, and Indonesia. The [highest deforestation rate](https://news.mongabay.com/2013/1115-worlds-highest-deforestation-rate.html) during the period occurred in Malaysia. While some critics immediately denounced the map for counting tree plantations as forests, others [recognized the value](http://travel.mongabay.com/news/2013/1118-google-forest-map-comment.html) of the map in providing a foundation for more powerful applications to come, including global high-resolution deforestation tracking.

**RUNNER UPS**

**1. The hamburger bite heard round the world:**

Arguably the most potentially world-transforming story of the year was a [hamburger](https://news.mongabay.com/2013/12/top-10-environmental-stories-of-2013/news.mongabay.com/2013/0806-hance-lab-meat.html). Grown in a laboratory from cow stem cells, the hamburger was a major step forward in producing meat without the corresponding environmental toll. Animal rights activists cheered the fact that this was a burger that was truly cruelty-free, while environmentalists saw the potential to make meat without the corresponding greenhouse gas emissions, water and energy consumption, and massive land-use demands. But the hamburger—which was eaten by food critics—still has a way to go before it reaches our stores: for one thing, the cost (researchers spent around $330,000 on this burger alone) must be significantly reduced.

**2. Ecuador drops Yasuni-ITT initiative:**

*Poison dart frog (Ameerega bilinguis) in Yasuni National Park in the Ecuadorian Amazon. Photo by: Jeremy Hance.*

In August, the Ecuadoran government [announced it was dropping](https://news.mongabay.com/2013/0816-yasuni-dead.html) a bold proposal to keep oil drilling out of Yasuni National Park’s ITT blocs. The South American country has said it would forgo oil exploitation if the international community pledged half the revenue of the suspected oil returns ($3.6 billion). Although lauded by some as an innovative plan, Ecuador said funds were coming in too slowly. However, critics labeled the approach as “extortion,” while others doubted that Ecuador’s political leaders would honor the commitment. Sitting in the Western Amazon, Yasuni National Park is viewed as possibly the most biodiverse ecosystem on the planet. Only a [national referendum](https://news.mongabay.com/2013/0826-hance-yasuni-take-two.html) in Ecuador could save the remote region from oil drilling now.

**3. Fukushima leaks:**

In July, TEPCO finally admitted that the crippled Fukushima nuclear power plant was leaking radioactively-contaminated water into the Pacific Ocean. No one knows exactly how much radioactive pollution has entered the ocean, but most experts say it should be rapidly diluted once it spreads out into the Pacific and fish caught outside the immediate area would pose little health concern. Though that could change if the situation escalates.

**4. Australia abandons climate progress:**

With the election of Tony Abbott as the new prime minister in Australia, the country has taken a [U-turn on climate change policy](https://news.mongabay.com/2013/1114-hance-australia-climate-shift.html). Running on a campaign to demolish Australia’s fledgling carbon tax, Abbott has not only pledged to kill the tax, but has also cut funding for renewable energy and shuttered its climate council. At the most recent UN Climate Summit in Warsaw, Australia was [largely viewed](https://news.mongabay.com/2013/1121-hance-ngos-walkout-cop19.html) as obstructing progress and belittling the process.

**5. Murder of sea turtle conservationist in Costa Rica shines light on poaching:**

*Jairo Mora Sandoval walking on the beach where he died after releasing over a hundred turtle hatchlings in 2012. Photo by: Carlyn Samuel.*

On May 23rd, 26-year-old Jairo Mora Sandoval was [brutally murdered](https://news.mongabay.com/2013/0610-hance-murder-sandoval.html) on a beach in Costa Rica. A longtime activist for nesting marine turtles, authorities believe Sandoval was killed for working to protect the animals against local criminal gangs that make money off raiding turtle egg nests. Sandoval’s brutal death brought the issue of turtle egg poaching (and its little-known link to the drug trade) to a global audience, and forced Costa Rica to take a look at holes in its environmental policies. The country is now considering turning the turtle beach into a protected area.

**6. NY Times kills environmental coverage:**

In January, the New York Times announced it was dismantling its environmental desk; a few months later it said it was [killing its well-known Green Blog](https://news.mongabay.com/2013/0305-hance-new-york-times.html). The paper pledged the changes wouldn’t affect its environmental coverage, but a recent analysis by Times’ editor Margaret Sullivan found that climate change coverage dropped by nearly a third, while front-page stories on climate fell from nine to three over the first six months.

**1. China begins to tackle pollution, carbon emissions:**

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**3. REDD+ approved**

*Osa rainforest tree. Photo by: Rhett A. Butler.*

Negotiators at climate talks in Warsaw [reached agreement](https://news.mongabay.com/2013/1122-redd-officially-approved.html) on Reducing Emissions from Deforestation and Degradation (REDD+), a program that aims to compensate tropical countries for protecting their forests. Importantly, the REDD+ framework includes provisions on safeguards; addressing drivers of deforestation like conversion for plantations; measuring, reporting and verification (MRV) of forest-related emissions; reference levels for measuring reductions in emissions from deforestation; and finance. Formal recognition of REDD+ could help clean up the forest carbon sector, which has suffered from an influx of “carbon cowboys” who have at times put profit before people, resulting in projects of questionable value to the climate or the environment.

**4. CO2 emissions rise more slowly:**

Is the rise in global carbon emissions finally slowing down? That’s the tentative conclusion from a [report released](https://news.mongabay.com/2013/1031-hance-2012-emissions.html) this year that found CO2 emissions rose only 1.1 percent in 2012 (as compared to the decadal average of 2.9 percent) even as the global economy grew 3.5 percent, pointing to a possible decoupling between CO2 emissions and the global economy. Scientists say emissions must peak within a few years and then rapidly decline if we are to have a fair shot at avoiding catastrophic climate change.

**5. Sharks and rays win protection at CITES:**

*The Oceanic whitetip shark was one of several species to gain protection under CITEs. The species has been decimated by shark-finning. Photo by: Thomas Ehrensperger/*[*GNU Free Documentation License*](https://commons.wikimedia.org/wiki/GNU_Free_Documentation_License)*.*

After years of mass-slaughter for shark-fin soup that has put many shark species at the risk of extinction, CITES has finally taken action. The animal trade group [protected five shark species and two manta rays](https://news.mongabay.com/2013/0311-hance-sharks-rays-cites.html) from international trade this year. In other good news, China has [banned shark-fin soup](https://news.mongabay.com/2013/1210-shark-fin-ban-china.html) from official state banquets. At its height, conservationists estimated that 90 million sharks were being killed annually for shark-fin soup, though there are signs that demand is slowing.

**6. Indonesia’s indigenous people win forest rights:**

In May, Indonesia’s Constitutional Court invalidated a portion of the country’s 1999 forestry law that classified customary forests as state forests. The [ruling is significant](https://news.mongabay.com/2013/0517-indonesia-customary-forest.html) because Indonesia’s central government has control over the country’s vast forest estate, effectively enabling agencies like the Ministry of Forestry to grant large concessions to companies for logging and plantations even if the area has been managed for generations by local people. In practice that meant ago-forestry plots, community gardens, and small-holder selective logging concessions could be bulldozed for industrial logging, pulp and paper production, and oil palm plantations. In [many cases](https://news.mongabay.com/2013/1210-indigenous-land-rights-petition.html), industrial conversion sparked violent opposition from local communities, which often saw few, if any, benefits from the land seizures.

**7. Scientists make one of the biggest animal discoveries of the century:**

In what will likely be seen as one of the most astounding taxonomic discoveries of this century, scientists in Brazil have [uncovered a new species of tapir](https://news.mongabay.com/2013/1216-hance-new-tapir-kabomani.html). Although weighing a hefty 250 pounds, this is the world’s smallest tapir and some have already dubbed it a dwarf tapir. The new megafauna was discovered by following the lead of local knowledge: indigenous people in the area have been hunting this animal for millennia, and considered it different from the other tapir in the region, the Brazilian tapir (*Tapirus terrestris*). Almost nothing is known about the behavior of the new tapir—the world’s fifth—but conservationists believe it is endangered due to habitat destruction in the region.

**8. Europe bans pesticides linked to bee collapse:**

The EU has [approved a partial ban](https://news.mongabay.com/2013/0429-hance-bee-eu.html) on pesticides that have been increasingly blamed by scientists for the collapse in bee populations. The 28-member states agreed to ban three neonicotinoid pesticides (imidacloprid, clothianidin and thiamethoxam) for two years on flowering crops. [Recent research](https://news.mongabay.com/2013/0327-hance-bee-brains.html) has shown that while the pesticides rarely kill bees outright they impact their brain functioning and disrupt natural behavior, a process that may eventually lead to collapsing colonies. Neonicotinoids are also believed to impact other wild pollinators, such as butterflies while the European Food Safety Authority recently warned that neonicotinoids may harm the brains of unborn children as well.

**9. Divestment campaign full-steam ahead:**

The divestment campaign against fossil fuels is only a little over a year old, but has already achieved [some major commitments](https://news.mongabay.com/2013/0501-gen-divestment-cities.html) and, perhaps more importantly, has raised awareness about the role of fossil fuel corporations in pushing us toward catastrophic climate change. The movement has spread from college campuses to cities, religious institutions, NGOs, and even [zoos and aquariums](https://news.mongabay.com/2013/1105-hance-zoos-divest.html). To date, eight colleges, 22 cities, two counties, and 18 religious institutions have committed to divesting. The campaign stated in the U.S., but this year moved into the UK, Australia, and New Zealand.

**10. Leatherback sea turtle no longer Critically Endangered:**

*Female leatherback sea turtle after laying eggs on a beach in Suriname. Leatherbacks are recovering in portions of the Atlantic, but remain hugely imperiled in the Pacific. Photo by: Tiffany Roufs.*

Conservation efforts in the U.S., Caribbean, and Central America have pulled the leatherback sea turtle back from the brink of extinction. A [new assessment](https://news.mongabay.com/2013/1125-hance-leatherback-vulnerable.html) of the species by the IUCN Red List has moved the world’s largest marine turtle from Critically Endangered to Vulnerable. However, while the subpopulation in the western Atlantic Ocean is growing, other populations are plunging. Pacific populations are rapidly declining, while populations along the west coast of Africa—the world’s largest—lack good data. Much more needs to be done, but the species is unlikely to vanish anytime soon thanks to relentless conservation work.

**RUNNER UPS**

**1. The hamburger bite heard round the world:**

Arguably the most potentially world-transforming story of the year was a [hamburger](https://news.mongabay.com/2013/12/top-10-happy-environmental-stories-of-2013/news.mongabay.com/2013/0806-hance-lab-meat.html). Grown in a laboratory from cow stem cells, the hamburger was a major step forward in producing meat without the corresponding environmental toll. Animal rights activists cheered the fact that this was a burger that was truly cruelty-free, while environmentalists saw the potential to make meat without the corresponding greenhouse gas emissions, water and energy consumption, and massive land-use demands. But the hamburger—which was eaten by food critics—still has a way to go before it reaches our stores: for one thing, the cost (researchers spent around $330,000 on this burger alone) must be significantly reduced.

**2. Google’s forest map:**

A team of researchers unveiled a [long-awaited map](https://news.mongabay.com/2013/1114-global-forest-map.html) of the world’s forests. Powered by Google, the map shows change in forest cover between 2000 and 2012, including large-scale forest loss in Russia, Brazil, United States, Canada, and [Indonesia](https://news.mongabay.com/2013/1114-deforestation-in-indonesia.html). The highest deforestation rate during the period [occurred in Malaysia](https://news.mongabay.com/2013/1115-worlds-highest-deforestation-rate.html). While some critics immediately denounced the map for counting tree plantations as forests, others recognized the value of the map in providing a foundation for more powerful applications to come, including global high-resolution deforestation tracking.

**3. Colombia establishes massive Amazon rainforest park:**

*La Meseta de las Piramides in Chiribiquete National Park. Photo by Mark Plotkin of the Amazon Conservation Team, which pushed for the park’s expansion.*

In August the Colombian government [officially doubled the the size of its largest national park](https://news.mongabay.com/2013/0816-chiribiquete-colombia.html). Chiribiquete National Park in southern Colombia expanded from 12,990 square kilometers to 27,808 square kilometers, making it one of the biggest protected areas in the Amazon. The expansion includes areas thought to be inhabited by two “uncontacted” or voluntarily isolated tribes. These areas were potentially at risk from oil exploration and mining.

**4. Saola reconfirmed in Vietnam after 15 years:**

*A female saola that was brought into a Laos village in 1996, nicknamed Martha. She died within a few days. Photo by: © William Robichaud.*

One of the world’s rarest and most elusive mammals is still around, according to [camera trap photos taken in Vietnam](https://news.mongabay.com/2013/1112-hance-saola-vietnam.html). Conservationists captured photos of the saola (*Pseudoryx nghetinhensis*) in an unnamed Vietnam protected area this year, the first evidence of the species in three years and the first confirmation of it holding on in Vietnam in 15 years. Conservationists fear that only a few dozen or, at best, a few hundred saolas are left in the world making it one of the most endangered mammals on Earth. Only [discovered in 1992](https://news.mongabay.com/2011/0404-hance_robichaud.html), the saola is among the last large-bodied mammals to be uncovered by science.

**5. Reversing local extinction:**

While biodiversity is on the decline worldwide, conservationists are having some notable success in bringing some species back. A ground-breaking program in Europe has [brought the northern bald ibis](https://news.mongabay.com/2013/1202-leonardo-northern-ibis.html) back to the continent for the first time in 300 years. This spring, the [first scarlet macaws](https://news.mongabay.com/2013/0610-mexico-scarlet-macaws.html) were released in Mexico after largely vanishing from the country 70 years ago. In another innovative project, gorillas orphaned by the bushmeat trade have been [successfully reintroduced](https://news.mongabay.com/2013/1021-gorilla-reintroduction.html) into areas where they had been hunted to local extinction. Finally, conservation efforts in Russia have allowed the [rising population](https://news.mongabay.com/2013/0409-hance-amur-leopard-fifty.html) of Amur leopards to not only seek out new territory in China, but even [breed there](https://news.mongabay.com/2013/1126-hance-amur-leopard-breeding-china.html).

**6. Botswana and Costa Rica ban hunting:**

In some parts of the world, hunters and their organizations are driving forces in local conservation efforts, but in many tropical countries overhunting is decimating animal populations. This year Botswana announced it would [ban all trophy hunting](https://news.mongabay.com/2013/0121-hance-hunting-bans.html) on public lands by 2014. Proponents of the law say the decline in Africa’s mammals has become too great to allow hunting purely for sport, while opponents say trophy hunting brings in much-needed revenue. Costa Rica, however, made the biggest waves when it announced it was [banning all hunting and trapping](https://news.mongabay.com/2013/0121-hance-hunting-bans.html), both inside and outside protected areas. The new law will still allow subsistence hunting by indigenous people.

**7. Scientists discover the uber-cute olinguito:**

*Baby olinguito found in SavingSpecies project site in Colombia. Photo by Juan Rendon.*

For those who like the [ridiculously adorable](https://news.mongabay.com/2013/1101-baby-olinguito-picture.html) in Nature, the discovery of the olinguito—a new mammal in the cloud forests of Andes—was a boon. The [olinguito is the first new carnivore](https://news.mongabay.com/2013/0815-hance-olinguito.html) uncovered in the Western Hemisphere since the 1970s (though the olinguito appears to be largely vegetarian), and the most distinct member of the olingo family—little-known tropical mammals related to raccoons. It’s hoped the discovery of the new mammal will bring renewed conservation attention to the cloud forests of the Andes, which are hugely [imperiled by deforestation and climate change](https://news.mongabay.com/2013/0918-hance-cloud-forests-climate.html), but contain thousands of species found no-where else.

**8. Using flies and leeches to monitor biodiversity:**

A [new technique](https://news.mongabay.com/2013/0116-hance-flies-DNA.html) to monitor secretive animals could prove as revolutionary to conservation efforts as remote camera traps. By extracting blood from leeches or flies, scientists can look at the DNA to tell what the blood-suckers have been feeding on and thereby know what animals are in the area. [Trials of this technique](https://news.mongabay.com/2012/0430-hance-leeches-DNA.html) have already been conducted successfully in Madagascar and Vietnam. With time this new technique—which is both cheap and efficient—could even monitor changes in animal populations. But it doesn’t just have to be large animals (like mammals and birds): the technique could also monitor changes in insect populations by looking directly at their DNA.

THE PRESIDENT AND THE PIPELINE  
The campaign to make the Keystone XL the test of Obama’s resolve on climate change.  
By Ryan Lizza  
After meeting with Obama, one activist felt challenged to make the case “why this pipeline is not in our country’s best interest.”  
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Illustration by Paul Rogers  
On the day of his second Inauguration, in January, Barack Obama delivered an address of unabashed liberal ambition and promise. As recently as early April, before the realities of the world and the House of Representatives made themselves painfully evident, the President retained the confidence of a leader on the brink of enormous achievements. It seemed possible, even probable, that he would win modest gun-control legislation, an immigration-reform law, and the elusive grand bargain with Republicans to resolve the serial crises over the federal budget. And he seemed determined to take on even the most complicated and ominous problem of all: climate change. The President, who had a mixed environmental record after his first term, vowed that he would commit his Administration to combatting global warming, saying that “failure to do so would betray our children and future generations.”  
  
The President flew to San Francisco on April 3rd for a series of fund-raisers. He stopped in first at a cocktail reception hosted by Tom Steyer, a fifty-six-year-old billionaire, former hedge-fund manager, and major donor to the Democratic Party. Steyer lives in the city’s Sea Cliff neighborhood, in a house overlooking the Golden Gate Bridge. As the President’s motorcade headed to the party, several hundred activists were assembling along the route to his second event—a dinner hosted by Ann and Gordon Getty, in Pacific Heights, on a street known as Billionaires’ Row. The protesters held banners that represented various causes, but most of them held professionally printed two-toned blue signs that said, “stop the keystone xl pipeline.” The “o” in “Keystone” replicated the Obama campaign logo.  
  
The environmental movement was testing Obama. Would he stand by his own Inaugural Address? During the past two years, environmentalists have coalesced around opposition to the seventeen-hundred-mile Keystone pipeline, which would carry oil from northern Alberta, Canada, to the Gulf of Mexico. Because the project crosses an international border, it requires the approval of the State Department and the President; a decision is expected in the coming months. Supporters of Keystone consider it essential to reducing the United States’ reliance on oil from the Middle East and unstable countries like Venezuela; its critics view it as Obama’s best chance to make a clear stand against one of the dirtiest fossil fuels contributing to climate change. “What do we want from our Pre-si-dent?” the protesters yelled. “No pipeline for the one per cent!” One marcher led the crowd in a call and response: “When I say ‘pipeline,’ you say ‘kill’! Pipeline! Kill!”  
  
At the reception in Sea Cliff, Steyer, an ardent environmentalist, was no less relentless with his guest from Washington, pressing Obama on the issue of the pipeline. In 2004, Steyer raised significant funds for John Kerry, and in 2008 for Hillary Clinton. In 2010 and 2012, he wrote large checks for statewide ballot initiatives in California that addressed environmental concerns. Last fall, he announced that he was stepping down as head of his investment firm, Farallon Capital Management, to devote himself full time to politics, especially to the issue of climate change. He has spent generously to boost pro-green candidates in the Massachusetts Senate race and the Virginia governor’s race. This month, he is appearing in a series of ninety-second, self-financed television ads in which he argues against Keystone. In October, he is launching a major bipartisan initiative on climate change with Mayor Michael Bloomberg and former Secretary of the Treasury Henry Paulson.  
  
Steyer, hoping for greater political influence, also has flirted with the idea of buying the Los Angeles Times, and is considering running for office in California. His brother Jim is a law professor and the founder and C.E.O. of Common Sense Media, which rates movies, books, apps, and video games to help parents find age-appropriate material for their kids. Jim Steyer told me that a friend had asked him if he and Tom were aspiring to be the Koch brothers of the left. “Yeah, I like that!” Jim replied. Tom dismissed the analogy. “I completely disagree, because what they’re doing is standing up for ideas that they profit from,” he said of the Kochs. “We think we’re representing the vast bulk of citizens of the United States. We’re not representing our pockets.” Bill McKibben, the environmental writer and advocate, who has met extensively with Steyer to discuss the strategy against Keystone, said, “After years of watching rich people manipulate and wreck our political system for selfish personal interests, it’s great to watch a rich person use his money and his talents in the public interest.”  
  
Steyer is, at first glance, an unlikely leader of the environmental movement. He is rangy and square-jawed, and he has exquisite establishmentarian credentials, to say nothing of a vast pile of money. He honed his raffish sense of humor at Phillips Exeter Academy, and went on to get degrees from Yale and Stanford business school. Before starting his own fund, he worked at Goldman Sachs and Morgan Stanley. According to a Forbes estimate, Steyer’s net worth is $1.4 billion, although one of his aides says, “The general assumption is it’s a lot more than that.”  
  
Cartoon  
“For me, crime pays for what Medicare doesn’t cover.”  
ShareTweetBuy a cartoon  
Steyer’s goal, at his fund-raiser for Obama, was not so much to berate the President, he said, as to “do the old F.D.R. thing,” showing Obama that the green movement was growing, and that supporting its goals was good politics. President Roosevelt is said to have once told labor leaders who were asking him to support major reforms, “I agree with you, I want to do it, now make me do it.” The story may be apocryphal, but Obama sometimes recounts it as a way of explaining to liberals that they need to build popular movements for their policies. When California Representative Nancy Pelosi, the top Democrat in the House, asked Steyer to hold the fund-raiser, to help Democrats running for Congress in 2014, he agreed, with one proviso: he would tell potential guests that they could lobby the President about the folly of approving Keystone.  
  
Steyer’s pitch to the donors was simple: “This is the best deal I’m ever going to give you. You should want to give this money, period, even if you never got anything. You can go and speak to the highest people in the Democratic congressional leadership. And we’re throwing in the President of the United States as a gimme. So you should be begging me to come.” To insure that the event left an impression on Obama, Steyer invited fifteen top donors to join him for an intimate conversation with the President before the reception for a hundred. Jim Steyer said, “Tom really hammered Obama on the pipeline.”  
  
Obama listened politely to Steyer, his wife, Kat Taylor, and their guests, then told them that climate change was one of many big issues he intended to address before he left office. “He was extremely impressive in terms of understanding the issue,” Steyer told me. “But he was saying, ‘I need to put this in the context of a whole program that I’m trying to get to. This isn’t the only thing I care about.’ “ Taylor said, “We didn’t get the answers we wanted.” At the larger reception, Obama joked about how the Republican Party’s miserable showing with Latinos in the 2012 election had been “clarifying” and said that passing immigration reform was a real possibility in the next few months.  
  
On the issue of climate change, he was far more pessimistic. He reminded his audience that many Americans don’t share the views or the culture of Steyer’s guests. “The politics of this are tough,” he said. “Because if you haven’t seen a raise in a decade; if your house is still twenty-five thousand, thirty thousand dollars under water; if you’re just happy that you’ve still got that factory job that is powered by cheap energy; if every time you go to fill up your old car because you can’t afford to buy a new one, and you certainly can’t afford to buy a Prius, you’re spending forty bucks that you don’t have, which means that you may not be able to save for retirement.” He added, “You may be concerned about the temperature of the planet, but it’s probably not rising to your No. 1 concern.” To some in the room, it seemed that the President was speaking for himself. He never mentioned Keystone. “The clear takeaway for Tom was that the President issued us a challenge,” one of Steyer’s political aides said. “Go out there and make the public-policy case as to why this pipeline is not in our country’s best interest.”  
  
One afternoon in early August, I met Steyer for lunch at a Greek restaurant in San Francisco’s financial district. Steyer’s voice turned grave when he talked about his embrace of climate change as a political issue.  
  
“In every generation, there’s an overwhelming issue that people may not recognize at the time, but that becomes the issue that is the measure of what you did,” he said. “In World War Two, if you look back, everybody was measured by what they said in the thirties and what they did in the forties. Charles Lindbergh was the biggest hero in the United States of America, and he went wrong on the biggest issue of the day, and that was the end of him. Look back to where people came out on civil rights in the fifties and sixties: maybe you were right about economic policy then, but, if you blew it on the big issue, then that’s the measure.” Climate change, Steyer insisted, “is the issue we’ll get measured by as a country and a generation. If we blow this, it will be because we were very focussed on the short term, on our pocketbooks, and we had no broader sense of what we were trying to do and what we were trying to pass on.”  
  
According to Steyer, the opposition to Keystone emerged from the President’s failed efforts to tackle climate change early in his Administration. Obama had some limited successes. In 2009, in one of his first acts in office, he ordered the Department of Transportation to implement higher fuel-efficiency standards for cars; in 2012, the rules were finalized, and they are his single most significant climate-change policy.  
  
The Environmental Protection Agency, led by Lisa Jackson, a chemical engineer, also issued a stringent rule on mercury emissions, forcing some coal plants, one of the largest sources of carbon emissions, to close down or switch to natural gas, which releases about half the carbon content of coal when burned. But Obama comes from Illinois, a coal state, and often has campaigned as a friend of the coal industry. As President, he didn’t confront the fossil-fuel industry in the way that many environmentalists and some advisers had hoped. “He’s been oil- and gas-friendly,” John Podesta, Bill Clinton’s former chief of staff and an adviser to the Obama White House, said.  
  
Cartoon  
“And donât ever try to use your smartphone during trivia night again!”  
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In December, 2009, Obama left an international climate summit in Copenhagen without a binding agreement to deal with global emissions or even a deadline to reach one. In April, 2010, after BP’s Deepwater Horizon drilling rig exploded, spilling some two hundred million gallons of oil into the Gulf of Mexico, a debate ensued within the Administration. The E.P.A and other agencies wanted to use the event to vilify BP and drive an environmental agenda that would take on the fossil-fuel industry. They found little support at the White House, where Obama’s senior staff believed that such an approach was either wrong on the merits or politically dangerous.  
  
“We were told to stand down,” a former senior Administration official who argued for taking a more confrontational approach said. During the cleanup, the Administration focussed on working constructively with BP while pursuing an ambitious climate bill that would have effectively put a price on carbon emissions, the starting point for moving away from fossil fuels. The bill passed the House in 2009, but the following summer, with Democrats from coal states opposing it and the White House unable to find enough votes to overcome a filibuster, it died in the Senate. In November, Republicans won back the House of Representatives, eliminating the prospects for any climate-change initiative. The incoming class of Tea Partiers included a number of climate-change deniers, and Obama abandoned serious work on the issue.  
  
“I think that in the first term he was hiding his light under a bushel,” Steyer said. “Barack did a good job on the regulatory side, but he made the decision that it was going to be somewhere between extremely unlikely and impossible to get a big energy bill. He obviously didn’t make it his top priority.”  
  
Opposing Keystone is just one item in Steyer’s new portfolio of political interests. After lunch, we headed to his offices at Next Generation, part of his growing network of energy and climate organizations, which include a political arm, a policy think tank, three clean-energy investment funds, and two research centers that he has financed at Stanford University. Steyer’s top policy adviser on climate is Kate Gordon, who previously worked at the Center for American Progress, an influential liberal think tank in Washington. After the summer of 2010, she said, the environmental movement, which had been unusually united in support of Obama’s climate bill, fractured. “Everything crashed and burned, and immediately all those groups retreated to their corners,” Gordon said. As Obama grappled with the Republican ascendancy in Congress, he dropped from his agenda any mention of climate change. Podesta, who is now an adviser to Steyer, said that Keystone filled the policy vacuum left by the President’s silence: “People were beginning to doubt the President’s commitment.” Keystone “became the test of the question: Are we going to do anything long term about climate change?, as he had promised in the 2008 election.”  
  
Gordon told me that until recently she thought that Obama was likely to approve the pipeline and that it was not wise for the movement to stress the issue. “I thought that it would be putting all of our eggs in one basket,” she said. “And, to continue with the egg metaphor, if we lost it would be a major loss and we’d have a lot of egg on our face.” She did see the benefits of the campaign, however: “The goal is as much about organizing young people around a thing. But you have to have a thing. You can’t organize people around a tipping point on climate change.”  
  
Canada has the third-largest reserve of oil in the world, behind Venezuela and Saudi Arabia, and the United States imports more oil from Canada than any other country does. Ninety-nine per cent of the oil that Canadians export—roughly 2.7 million barrels a day—comes here to be refined into petroleum products, which are sold domestically and abroad. The overwhelming majority of Canada’s reserves are in the form of bitumen, a viscous oil, attached to a mixture of sand, water, and clay, that is found under pristine boreal forests across fifty-four thousand square miles in northern Alberta.  
  
It’s the most controversial oil deposit in the world. Oil sand has the texture of soft asphalt; twenty per cent of it lies close to the surface, and the area is effectively strip-mined. The bitumen-rich sand is removed, mixed with water into a slurry, and spun in centrifuges until the oil is separated, leaving behind vast black tailings ponds that are hazardous to wildlife. The mining operations sprawl ruinously for miles. The remaining eighty per cent of the oil sands lie hundreds of feet down beneath a layer of hard rock. Steam is injected deep belowground until the oil naturally separates and is drawn out. The extra energy required to extract the oil from the sand makes it a more carbon-intensive fossil fuel—averaging seventeen per cent more, according to the State Department—than conventional oil. Even the name of the oil fields of Alberta is contested. Most industry and government sources use the term “oil sands”; environmentalists and other opponents prefer “tar sands.”  
  
The oil sands also are the only major reserve of crude in the world that is completely landlocked. Canadian oil companies, with tacit support from the U.S., have long sought to connect the facilities in Alberta to the Gulf Coast, the site of several large refineries, such as that of the oil company Valero, in Port Arthur, Texas, which are designed to handle heavy crude oil. The industry argues that although rail and other pipeline projects hold some potential, the Keystone pipeline is the simplest, most cost-effective, and most direct way to get Canadian oil to market.  
  
Cartoon  
“The meaning of life is having a spectacular view.”  
ShareTweetBuy a cartoon  
Keystone is actually the name for a system of pipelines. An existing line runs east from Alberta and then cuts south through the Dakotas and Nebraska, where it divides in two. One leg turns east and terminates at refineries in Illinois. The other leg runs south to Cushing, Oklahoma, a crucial oil-market hub. Much of the oil that the U.S. imports from Canada already passes through these pipelines. But the major controversy is over the Keystone XL, a proposed “bullet” pipeline connecting Alberta to Nebraska and a new southern leg that runs from Cushing to the Gulf. The southern project didn’t require Presidential approval and is nearing completion, despite some local efforts to stop it. Keystone XL would increase Canada’s oil exports to the U.S. by as much as eight hundred and thirty thousand barrels a day, and, environmentalists argue, it would increase the speed at which the oil sands are exploited.  
  
“The pipeline would completely change the rate at which the oil comes out of the ground,” Steyer said. “It would enable a much faster development, three times as fast. This is the size of Florida. . . . This is going to go on for decades. It’s not like we’re enabling a Shell station to be open after midnight.”  
  
Anti-Keystone activists believe that, if they can prevent Canadian crude from reaching Texas, they can dramatically slow the development of the oil sands. The industry concedes the point. In February, a pro-oil Canadian think tank issued a report called “Pipe or Perish: Saving an Oil Industry at Risk.” It noted that without Keystone XL the amount of oil produced in northern Alberta, which is projected to double by 2030, will soon outpace the industry’s ability to export it: “If this happens, investment and expansion will grind to a halt.”  
  
The construction of Keystone XL seemed like a foregone conclusion until the spring of 2011, when the climate scientist James Hansen posted an article online. The title of his post, which was really a short note to other climate researchers and activists, was “Silence Is Deadly.” The message was alarming: “The U.S. Department of State seems likely to approve a huge pipeline to carry tar sands oil (about 830,000 barrels per day) to Texas refineries unless sufficient objections are raised.” Hansen argued that catastrophic climate change could be averted if coal was phased out in the next few decades, even if known deposits of conventional oil continued to be exploited. But, as the easily accessible deposits of oil have diminished, industry has focussed increasingly on unconventional deposits, like the oil sands.  
  
“Phase-out of emissions from coal is itself an enormous challenge,” Hansen wrote. “However, if the tar sands are thrown into the mix, it is essentially game over.” If the carbon locked underground in Alberta is exploited, he insisted, there is no chance of preventing runaway global warming.  
  
One of Hansen’s readers was Bill McKibben, a former staff writer at The New Yorker, who first started writing about climate change in the nineteen-eighties; he now runs an advocacy group called 350.org. (The name is a nod to Hansen’s calculation that once the level of atmospheric carbon dioxide exceeds three hundred and fifty parts per million, climate change could become uncontainable.) Like many climate-change activists, McKibben, after Obama’s legislative failure, was struggling to bring focus to the movement. He became seized by the pipeline issue. “This is like a Rube Goldberg machine producing global warming and other environmental catastrophes,” he told me. “You couldn’t figure out a grosser way to wreck the planet than what they’re doing. If we’re going to do anything about global warming, it’s the poster child for the kind of stuff that’s going to have to stay in the ground.”  
  
In June, 2011, McKibben and several fellow-activists, including Hansen, the poet Wendell Berry, and the actor Danny Glover, circulated a letter urging people to join a protest against the pipeline, to take place in Washington that August. Over two weeks, McKibben and twelve hundred and fifty-two others were arrested in a civil-disobedience demonstration outside the White House gates. (Most were arrested for “failure to obey a lawful order,” after police asked them to move.) McKibben spent three days in a D.C. jail. He helped to persuade ten large environmental groups, ranging from Friends of the Earth and Greenpeace to the Environmental Defense Fund and the League of Conservation Voters, to write a joint letter to Obama opposing Keystone and supporting the demonstration. Later, the Sierra Club, which has always kept its distance from environmental radicalism, made an exception to its hundred-and-twenty-year-old tradition of using only “lawful means” to protect the environment, in order to allow its leadership to take part in future actions. McKibben had successfully made Keystone the most prominent environmental cause in America.  
  
That fall, McKibben and some of his colleagues sat down at a computer in his office at Middlebury College, and examined Google Earth images of downtown Washington. For the next action, he wanted to build a human chain around the White House. The route was about a mile and a half long; he figured that he would need three thousand people. The movement was growing, especially on college campuses. In November, some fifteen thousand people showed up for the demonstration, which they called a “solidarity hug.” Many carried signs that quoted Obama’s statements from the 2008 campaign on climate change and his commitment to reduce the country’s dependence on fossil fuels. “We want him to live up to what he said he was going to do,” McKibben said.  
  
The anti-Keystone movement had seemed like a fringe cause. Now it was generating front-page headlines. Four days after the human-chain stunt, the Administration announced that the State Department would need another year to study the pipeline. In July of 2012, McKibben wrote an article for Rolling Stone called “Global Warming’s Terrifying New Math.” The piece explained the difficulties of tackling climate change if unconventional oil resources such as the Canadian oil sands were exploited. Tom Steyer admired the article so much that he called McKibben, whom he didn’t know, to congratulate him.  
  
Cartoon  
“Oh, thereâs nothing really wrong with our marriage. Weâd just like to figure out a way to monetize it.”  
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Steyer grew up on the Upper East Side of Manhattan. His father, from a Jewish family in Bedford-Stuyvesant, became a Wall Street lawyer, and his mother, an Episcopalian from Minnesota, was a journalist and a teacher. He and his older brothers, Jim and Hume, a lawyer in New York, attended Buckley, a boys’ school near their apartment. Tom often spent his summers outdoors. He worked on a cattle ranch in Nevada, picked fruit in Oregon, and travelled around Alaska as an adviser to the state, scouting projects that the government could fund with its oil revenues. After graduating from Yale, he worked for two years on Wall Street, and then Jim helped persuade him to move to California to attend business school at Stanford, where Jim went to law school. Tom, in his second year, met his future wife, Kat Taylor, also a Stanford law student. She runs a community bank and TomKat Ranch, a two-thousand-acre cattle ranch in Pescadero, an hour south of San Francisco, on the Pacific Coast.  
  
In 1983, after finishing business school, Tom returned to New York and worked in the risk-arbitrage division of Goldman Sachs under Robert Rubin, Clinton’s future Treasury Secretary. Goldman had made money through the most difficult economic years of the nineteen-seventies. Steyer wanted to learn how to invest, but he was also interested in politics, and he was attracted to Rubin, partly because he was one of the few prominent Wall Street figures with ties to the Democratic Party. “I knew that I was going to be taught how to be a careful and successful person in investing by people who had done it in really, really, really hard times,” Steyer said.  
  
Steyer was seen as a future leader at Goldman, but his relationship with the company ended abruptly when, less than three years into the job, he told Rubin that he was considering moving to California to manage his own investment fund. “They demand loyalty,” Steyer’s wife, Taylor, said. “He went to talk about leaving to possibly run some money in San Francisco, and Goldman basically said, ‘Fine, see ya.’ ” The move led to a temporary falling out between Steyer and Rubin. “I remember thinking we were losing a superstar, ” Rubin said.  
  
In San Francisco, in February, 1986, Steyer started Farallon Capital Management, and he married Taylor a few months later. The new hedge fund applied the methodology he had learned at Goldman to a broader range of investment activities. He raised about ten million dollars to start the firm. When he left, he said, he was managing “about twenty B”—twenty billion dollars.  
  
After securing his fortune, Steyer spent his forties turning to God and politics. “I am very religious,” he said. “I go to church every Sunday. I think about everything I’m doing now from a religious perspective. My midlife crisis was thinking about the purpose in living, and my reaction was to figure out that I believe in God.”  
  
Steyer became a philanthropist and wrote occasional checks to Democratic politicians in California, but the Bush Presidency galvanized him. “In 2002, I was, like, ‘O.K., this guy’s a historic mistake,’ ” he said. “I can’t tell my grandchildren, ‘We really screwed it up, but I was making a lot of money so I didn’t have time to do anything about it.’ I thought, Win, lose, or draw, I have to put everything I can into defeating this guy because he’s going to be terrible for the United States if he gets reëlected. So I went to work for John Kerry.”  
  
In 2007, Chris Lehane, a former Clinton and Gore operative nicknamed the “master of disaster” for his work at the White House responding to Whitewater and the Lewinsky affair, learned that Republicans in California were attempting to change the rules for allocating electoral votes in Presidential elections. Under the proposed plan, the Republican nominee for 2008 would have gained some twenty extra electoral votes. Lehane approached Steyer, who had become well known in Democratic donor circles, about funding a campaign to defeat the proposal. It was a battle of hedge-fund managers. Paul Singer, an investor close to Rudolph Giuliani, who was running for President, largely funded the Republican effort, and Steyer, spending nearly a million dollars, funded the counter-campaign. Steyer won.  
  
Three years later, Steyer and Lehane teamed up again, to defeat a ballot proposition financed by two Texas oil companies that would have overturned a California law to reduce greenhouse-gas emissions. Unlike the 2007 effort, in which Steyer’s role was not well-known until afterward, Steyer co-chaired the 2010 campaign with George Shultz, Ronald Reagan’s Secretary of State. Arnold Schwarzenegger, who was governor and also opposed the oil companies’ proposition, recruited him. The unlikely pair of Steyer and Shultz became the public faces of the effort. Shultz, who is now ninety-two, said of Steyer, “He likes to win—big.” Steyer spent five million dollars, and the proposition was defeated by a margin of sixty-two to thirty-eight.  
  
Last year, Steyer funded a California proposition to close a tax loophole that benefitted out-of-state corporations. The money would be directed instead to education and environmental initiatives. Steyer spent more than thirty million dollars on the initiative, which passed by sixty-one per cent; it will add an extra billion dollars of revenue to the state budget every year for the foreseeable future. He considers it one of the best investments he ever made. “I would do that every year for the rest of my life if I could,” he said. At the end of the campaign, he established a political arm of Next Generation, which he is using to replicate the successful California strategy across the country.  
  
Last summer, in his first phone call with McKibben, Steyer suggested that the two go hiking in the Adirondacks. By the time they descended Giant Mountain, Steyer was prepared to dedicate himself to Keystone full time.  
close dialog  
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“He understood the math of everything,” McKibben told me. “Not surprisingly, because I guess that’s what you do when you’re a hedge-fund guy, or whatever it is he does—you sit around figuring out the mathematical implications of things. He instantly understood why Keystone was important both in science terms and in political terms—that it would be the moment when the President would make or break his place in this particular history.”  
  
Cartoon  
ShareTweetBuy a cartoon  
That October, Steyer officially stepped down from running Farallon. He no longer has an ownership position in the company, but the firm still invests his money and he’s the equivalent of a limited partner. After being criticized by some Republicans for holding some investments in the fossil-fuel industry, including stock in Kinder Morgan, which has proposed extending a rival pipeline to Keystone, Steyer said that he would fully divest his portfolio of its “dirty energy” holdings within a year. After leaving Farallon, he convened a two-day “Big Think Climate Meeting” to plot his future in politics. He held the retreat at the TomKat Ranch. Two dozen top environmentalists attended, among them McKibben, Hal Harvey, and Tara McGuinness, who now works at the White House. Also present were Steyer’s closest political advisers, including Lehane and Podesta, and some friends from the venture-capital and high-tech worlds, among them some young executives from Twitter.  
  
The news about climate change was particularly grim. The Scripps Institution of Oceanography had reported that the atmospheric concentration of carbon dioxide was three hundred and ninety-one parts per million, well above the safe limit of three hundred and fifty. Obama was favored to win reëlection, but he had hardly mentioned climate change in the campaign. Mitt Romney, the Republican nominee, avidly supported Keystone, promising to “build it myself,” if necessary. “We wanted to get as many people who know stuff but weren’t part of the existing climate-energy establishment to think about this problem,” Steyer said. Between sessions, which took place at a long table in the TomKat kitchen, some attendees played around outside on a mechanical bull.  
  
There was no debate about the science and little debate about the policy prescriptions. The planet was warming and greenhouse-gas emissions had to be curbed. The problem was that the political system wasn’t responding fast enough. “If you’re driving a car at a hundred miles an hour toward a cliff,” Steyer said, “you can’t wait until the last inch and go, ‘You’re absolutely right, that is a cliff!’ ” Given the inevitable consequences to the environment, Lehane said, climate will become a top issue for voters. “The social-theory question Tom basically settled on was: How do we accelerate that process?” Lehane said.  
  
The group broke into three camps. The participants from Silicon Valley were deeply influenced by how activists in the Arab Spring had used cell phones, text messages, and social media to organize. “They talked about liberation technology, and how that could be used and deployed around this movement and this issue, particularly given how strongly young people feel,” one of Steyer’s aides said. (Young voters overwhelmingly support climate-change policy.) Podesta, who was skeptical, described them as the “all we need is the killer app” camp.  
  
McKibben represented the second faction, which Podesta described as a “human-rights kind of strategy.” McKibben talked about civil disobedience, of the sort that he and his followers engaged in, and about his latest effort, a campaign modelled on the anti-apartheid divestment movement. He believes that major institutions can be pressured to divest themselves of fossil fuels. He is at work enlisting what he says are huge numbers of young people—his organization has thousands of volunteers—including an extensive network on college campuses.  
  
Podesta and Lehane argued that, to change policy, one had to change the politics. They cited immigration reform and gay marriage, issues on which national politics had changed quickly in the Democrats’ favor. “Right now, there’s no pain in being a weasel on climate change,” Podesta said. “What’s the safest political thing to do? Don’t piss off the fossil-fuel industry, because they’ll come after you if you do. And then the other group is ‘Say the right thing, but don’t do much.’ “ Republicans have been able to claim that the science is unclear and that there hasn’t been appreciable warming in the past ten years and not “pay any price for it.” Podesta and Lehane urged Steyer to spend his money on electoral politics, to force politicians to pay a price.  
  
After Obama won reëlection, he began to talk again about global warming. “We will respond to the threat of climate change, knowing that the failure to do so would betray our children and future generations,” he said in his second Inaugural Address. In his State of the Union Message, he declared that if Congress didn’t send him a plan to reduce carbon emissions he would act on his own, through the E.P.A.’s regulatory process. Obama likely would have quietly approved the original pipeline-permit proposal, submitted by TransCanada, the company building Keystone, to the State Department in 2008. But in December, 2011, congressional Republicans inserted language in an economic package that demanded a decision within sixty days, and the State Department said that that wasn’t enough time to review the proposal. TransCanada submitted a new permit application in May, 2012, the one now under review. Activists have used the interim to lobby against the plan. “This thing was rolling toward approval,” Podesta said, arguing that the Republican effort to force Obama’s decision backfired. “All they did was put off the decision long enough so that you could mount a serious campaign against it.”  
  
In February, a few days after Obama’s State of the Union address, McKibben helped organize a major rally on the Mall. Tens of thousands of people showed up. Steyer addressed the crowd, along with the country’s leading anti-Keystone activists. McKibben had asked Steyer to join him and Hansen and a few dozen others in tying themselves to the White House gates and getting arrested, but Jim, among others, talked him out of it. “Tom, that’s not who you are, that’s who Bill McKibben is,” he told him. “It’s important to have a voice like Bill McKibben, but that’s not your voice. Your voice is as this incredibly smart, thoughtful business guy who’s looking at the economic implications and going, ‘This is a disaster.’ “  
  
Steyer wanted to test Lehane’s theory that traditional campaign politics—the world of Super pacs and field organizations and TV ads—was the best way to spend his money. “Once politicians start to become aware that this issue can either help them or hurt them, you begin to change the conduct and behavior of those who are in elected office,” Lehane insisted. “Politicians very rarely lead, despite the fact that they talk about leadership in every speech. They typically follow.”  
  
Cartoon  
“I’ll go to my room and do my homework, but I want time and a half.”  
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There aren’t usually many significant electoral races in the year after a Presidential election, but in December, with Hillary Clinton stepping down, President Obama nominated Massachusetts Senator John Kerry as Secretary of State. Kerry, a longtime advocate for addressing climate change and a co-author of the failed 2010 legislation, was now in charge of reviewing TransCanada’s application to build the pipeline extension, and the special election in Massachusetts to fill his Senate seat gave Steyer an ideal test case. Edward Markey, a longtime Massachusetts congressman and another co-author of climate legislation, opposed Keystone. His Democratic primary opponent, Representative Steve Lynch, supported it. Steyer’s group spent $1.8 million attacking Lynch and backing Markey. Lehane said they used the same “formula” that had been successful in California: an “enemy” oil company pursuing its own self-interest was hurting the state. Markey won, and went on to victory in the general election. Steyer began looking for his next opportunity.  
  
Alberta is the Texas of Canada, a fact that Canada and the U.S. have appreciated for some time. In 2005, when Vice-President Dick Cheney visited, the U.S. Ambassador to Canada sent him a cable about his destination: “Considered the ‘most Americanized’ province in Canada, attributable in part to the oil and gas boom that drew U.S. firms to the province in the early 1900s, Alberta maintains a relatively pro-American, free market sentiment.” U.S. entrepreneurs spent decades trying to help Canada figure out how to profitably exploit the oil sands. “The old joke there was that Canadians sold life insurance and Americans drilled for oil,” David Manning, Alberta’s lobbyist in Washington, said. “My friends growing up were from Oklahoma and Texas. A lot of the expertise and a lot of the early investment came from the U.S.”  
  
For many years, interest in the oil sands spiked only when crude prices rose enough to justify the high costs of extracting the petroleum from the sand. Mired in debt, Alberta lacked the ability to fully develop the resource. Its industry was saved by a prolonged spike, from 9/11 until the recent recession, when the price of oil jumped from twenty-five dollars a barrel to more than a hundred and thirty. Canada began advertising its vast oil resources to the world.  
  
The Bush Administration saw Canadian oil as a cornerstone of its energy policy, and in 2005 Alberta opened an office in Washington to help solidify American backing. Revenues from oil erased Alberta’s debt. In 2006, Prime Minister Stephen Harper, an Alberta politician who started in the petroleum industry in Calgary in 1978, declared Canada an “emerging energy superpower.” Today, one-third of the Canadian economy is tied in some way to the oil sands.  
  
The impact is most immediately visible in Calgary. The skyline is dotted with construction cranes and new glass towers built by oil and gas companies: the Bow, the newest and tallest building, built by the energy companies Encana and Cenovus; the Shell Centre; the Home Oil Tower; the sprawling Suncor Energy Centre, home to one of the largest operators in the oil sands; and the TransCanada Tower, which houses the pipeline company’s headquarters and the control room it uses to pump oil from Alberta to the U.S. through the existing Keystone pipeline.  
  
Many of the energy executives, regulators, and politicians I spoke to in Calgary seemed baffled that their industry and province had become the face of global environmental ruin. Jim Ellis, who was a commander in Bosnia in 1994 and ran the Canadian military in Afghanistan in 2005, now directs the Alberta Energy Regulator, which oversees environmental compliance for the oil sands. In 2009, he was greeted as a pariah at the Copenhagen climate summit. “We had no idea,” he said. “We were just little Alberta. We wandered in and went, ‘Holy crow, what is going on here?’ We came back, and one of the ministers said, ‘You know what, I don’t think some people like Alberta and Albertans.’ We’ve never seen that before! We’re nice people!”  
  
Industry officials point out that the amount of carbon emitted to extract the oil in Alberta has declined by about one per cent every year for the past two decades. They note that Hansen’s dire warning about Canada’s unconventional oil deposits was based on the assumption that every ounce of oil in the sands would be burned. (Only a small fraction of the total estimated reserves is recoverable, and doing so will take decades.) Alberta even instituted a carbon tax for its heaviest emitters, a policy that has never gained traction in the United States. The tax is only fifteen dollars per ton of carbon dioxide, but the money goes into a fund to pay for research to lower the amount of carbon used to extract the oil. To many critics, however, focussing so much attention on reducing the carbon footprint of oil-sands oil to the levels of, say, Saudi Arabian oil, which has a lower carbon profile, is like telling a morbidly obese patient to lose weight by eating Quarter Pounders instead of Big Macs.  
  
Obama’s approach to Keystone is characteristically technocratic. In June, he delivered a major speech about climate change in which he declared that Keystone XL would be approved “only if this project does not significantly exacerbate the problem of carbon pollution.” The State Department has been studying the issue, and in March it released a draft environmental-impact statement. It concluded that building the pipeline would not “significantly impact the rate of extraction in the oil sands,” and noted that, without Keystone XL, oil from Alberta would be shipped to refineries on the Gulf by rail, which is more carbon intensive, or to foreign markets through new pipelines that Canadian companies are trying to build to their east and west coasts. There are regulatory hurdles and local opposition to those projects. But in a market analysis the State Department concluded that, one way or another, the Canadians would find a way to sell their oil.  
  
Cartoon  
“Ladies and gentlemen, there is an uptown train a hundred and two stations away.”  
ShareTweetBuy a cartoon  
Lisa Jackson, frustrated by Obama’s inaction on climate change, left the E.P.A. in February. In April, the agency, under attack by congressional Republicans who were delaying the confirmation of its next administrator, Gina McCarthy, scrambled the Keystone debate: it challenged the State Department’s analysis of the oil market, suggesting that Canada might find it difficult to ship its oil without Keystone. “We think it is important that it be as complete and accurate as possible,” the E.P.A. assessment noted, adding that the State Department’s report, “while informative, is not based on an updated energy-economic modeling effort.” The fate of Keystone now depends on the outcome of this bureaucratic fight. “If State sticks with its original analysis, Keystone will probably be approved,” a former State Department official said.  
  
Kerri-Ann Jones, the Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs, who is in charge of that analysis, told me that she is taking the E.P.A.’s critique seriously. “We’re looking at any new information regarding the market analysis, any changes we’re seeing,” she said.  
  
The E.P.A.’s rebuke to the State Department has energized environmentalists and unsettled the Canadians. Gary Doer, the Canadian Ambassador to the U.S., is a former pre-mier of Manitoba who has a good record on climate-change policy—one of the reasons that the Harper government sent him to Washington in 2009. Doer is tanned, with a sweep of white hair. When I spoke with him last month, he said that he took umbrage at being lectured on climate change by the U.S. “We have regulations well in advance of the United States,” he said.  
  
I mentioned that I had recently been in San Francisco with Tom Steyer. “California thermal oil, outside the San Francisco areas that you were in, has higher greenhouse-gas emissions than oil sands!” he said. “When we have California celebrities commenting on oil, it’s a little rich, in its full sense of the word. We have a different culture. You can’t own five homes and drive around in a corporate plane and then claim to be some Buddhist purist.” He added, “It is an interesting thing when you have people going to Copenhagen saying, ‘I’ve weaned myself completely off of all fossil fuels,’ which begs the question, How long is that kayak ride from Malibu to Copenhagen?”  
  
On August 15th, Steyer was standing in shirttails and a pair of blue-and-white striped boxers on the deck of a pontoon boat as it navigated an inlet along the Texas-Louisiana border in the Gulf of Mexico. His boat crept toward the Mariposa, a hulking gray tanker in front of Motiva, a refinery owned jointly by Royal Dutch Shell and Saudi Refining. Jim Margolis, a political ad-maker best known for producing most of Obama’s Presidential-campaign commercials in 2008 and 2012, was pacing the deck, directing the captain. The Mariposa’s two forward anchors looked like torpedoes protruding from the bow. “If we get in any closer, Tom, and they figure out it’s you, I think they’ll probably drop an anchor on you,” Margolis said, as he handed Steyer some clothes.  
  
Steyer had asked Margolis to help him produce a series of television ads making the case against Keystone. In August, Lehane had produced an ad that featured an actor, portraying the C.E.O. of TransCanada, hurtling down a pipeline as if it were a waterslide while he bragged about selling Keystone to the American public using an “old-fashioned lie.” Lehane wanted it to air in Washington during an appearance, on August 6th, by Obama on the “Tonight Show,” but the local NBC affiliate said that the commercial didn’t meet its standards. Lehane “was delighted when that happened,” Steyer said, noting that the decision only gave the ad more attention.  
  
The ad was largely a stunt, but Margolis came up with a million-dollar campaign consisting of four ninety-second commercials that will appear sequentially over four weeks, starting on September 8th, during the Sunday-morning political chat shows. He and Steyer call it the Keystone Chronicles. Each week, Steyer will appear in a new location. After the Gulf, he’ll go to Arkansas, near the site of a recent spill of Canadian crude. Then he’ll appear at a clean-energy manufacturing plant to discuss jobs. The series will end with Steyer in New York, on the Brooklyn Heights Promenade, with the Manhattan skyline behind him, speaking about Hurricane Sandy and the impact of climate change. “It gives it a more documentary feel, in the sense that each one is different and you have to watch each week to see what he’s doing next,” Margolis said.  
  
Steyer put on a pair of khakis, changed into a blue shirt, and read his script aloud. “I’m Tom Steyer, I evaluate investments and help grow companies,” he said. “Being successful means learning the difference between a good investment and a bad deal. Today, we look at who profits when Keystone is built. Here’s a hint: it’s not America. We’re on the Gulf Coast at one of the largest refineries in the world, owned by Royal Dutch Shell and Saudi Refining. It’s where tar-sands oil piped from Canada will be refined and loaded on ships to be sold overseas to countries like China.” While Steyer studied his lines, Margolis and his crew watched the Mariposa, which seemed to be leaving port. Filming in the path of a moving vessel carrying some six hundred thousand barrels of oil seemed unwise.  
  
Steyer’s boat motored through the inlet in search of another backdrop, and stopped at a refinery owned by Valero, the Texas company that happened to be his opponent during his California proposition fight in 2010. The Sanko Amity, a green-and-red tanker, was sitting idle in front of the refinery. Its ballast tank was largely empty, so the ship towered above the water. After anchoring and setting up the shot, Margolis’s partner, J. Toscano, looked into a monitor and was thrilled. “It’s so good, it’s going to seem like Green Screen,” he said.  
  
Cartoon  
“Careful in the bathroomâwe just had it reimagined.”  
ShareTweetBuy a cartoon  
A makeup artist touched up Steyer’s face, and he stood in front of the Valero tanker reading the script from a teleprompter, as Margolis shouted instructions. “Less angry, more factual,” he said. “More in sorrow than in anger.” After two dozen takes and some B-roll of Steyer floating past the refineries looking at pipelines, they were finished. The ad followed Steyer and Lehane’s California formula: foreign oil from Canada was being sold to foreign refiners in the Gulf and shipped to China, while the oil companies profited.  
  
As political theatre, it was a pretty good ad. Steyer appeared honest and confident. But, as a lesson in global-oil economics, the ad lacked context. Back on shore, I met with Greg Gentry, Valero’s general manager in Port Arthur. As he explained the process of turning crude oil into gasoline, diesel, kerosene, and jet fuel, he pointed out of the window at a distillation tower with tubes running from it. Inside the tower, crude oil was heated at various temperatures and turned into vapor, which was then collected and condensed. The higher up the tower, the lower the temperature. Heating crude oil toward the bottom, at four hundred degrees, made kerosene. Farther up, at two hundred degrees, made gasoline. I noted that it wasn’t much different from distilling alcohol. “That’s exactly what it is,” Gentry said.  
  
Most early American refineries were built to refine lighter crudes produced in the U.S. As America began importing more foreign oil, newer refineries were designed to process heavy crudes. The refineries best situated to buy oil-market crude were the ones on the Gulf Coast, Gentry said. “They’re sitting on the water, so they upgraded to run the world’s heavier crudes.”  
  
Much of the gasoline, diesel, and other fuels produced at Valero is sent north by pipeline. “If you’re consuming product anywhere in the Northeast United States, the majority of that product is made on the Gulf Coast,” he said. The rest is sold in foreign markets, a fact that Steyer and other opponents of Keystone have seized upon to argue that Canadian oil would do little to achieve oil independence for America. But there’s a world market for refined products, and American refiners sell according to market demands, no matter what country they buy their crude oil from. Keystone wouldn’t change that basic fact of the international oil market.  
  
Gentry favors approval of the Keystone XL. He said that he needs three hundred and forty-five thousand barrels of oil a day, and having a pipeline of crude that would terminate up the road would be ideal. He currently buys his foreign oil from Venezuela, Mexico, and Russia, and the reliability of a pipeline beats the costs and potential delays associated with tankers. “When the weather kicks up, or there’s a hurricane in the Gulf, ships get delayed four or five days,” he said. He laughed when I said that the Canadian Ambassador to the U.S. had told me that Keystone was being built at the request of Gulf refiners. “Is that right?” he said. Gentry’s main concern was in receiving a reliable supply at the best price. He also disagreed with the State Department’s claim that, without Keystone, Canada would simply ship its oil by rail. Bringing Canadian oil to the Gulf by rail is too expensive, he said: “They would have to drop the price of their crude.”  
  
This fall, five months after Obama’s visit to San Francisco, the politics of his second term have changed. His gun-control agenda is dead. His immigration bill—the legislative centerpiece of his second term—is languishing in the House, with little prospect for passage. Chances for a grand bargain with Republicans on the budget seem remote. The White House had hoped that Obama’s 2012 victory would jolt Republicans into a more coöperative mood, but Congress has thwarted his entire domestic agenda.  
  
In recent months, Obama has been looking for ways to act without Congress. Climate change happens to be the one policy area that requires almost nothing from Capitol Hill in order for him to make a major difference. “In my State of the Union address, I urged Congress to come up with a bipartisan, market-based solution to climate change, like the one that Republican and Democratic senators worked on together a few years ago,” he said in his June climate speech. “And I still want to see that happen. I’m willing to work with anyone to make that happen. But this is a challenge that does not pause for partisan gridlock. It demands our attention now. And this is my plan to meet it.” He directed the E.P.A. to issue new rules curbing emissions from coal-fired power plants. Electricity plants running on coal produce more than a quarter of U.S. carbon pollution. Depending on the stringency of the new E.P.A. rules, they could be even more consequential than his 2012 automobile regulations.  
  
Accounts of Obama’s private views about his second-term climate agenda suggest that he sees the E.P.A. rules as his real legacy on the issue, and that he’s skeptical of the environmentalists’ claims about Keystone. “He thinks the greenhouse-gas numbers have been inflated by opponents,” Ambassador Doer said. Journalists who discussed the issue with Obama earlier this year in off-the-record sessions said that he told them the same thing. Some of Steyer’s allies on the climate issue also remain unconvinced that Keystone is the right battle. Rubin, who will be an adviser to the climate initiative being launched by Steyer, Paulson, and Bloomberg, says he doesn’t oppose the pipeline, and Shultz, another adviser to the new effort, favors approving Keystone. “This is oil that’s going to be produced whether or not there’s a Keystone pipeline,” Shultz said. “Get over it!”  
  
But the deterioration of Obama’s legislative agenda and the growing strength of the movement against the pipeline have convinced some that the odds are now higher that Obama will deny the pipeline permit. “I think it’s a fifty-fifty proposition,” Podesta said.  
  
Cartoon  
“Sorryâjust thinking out loud.”  
ShareTweetBuy a cartoon  
For many activists, the opposition to Keystone isn’t really about the pipeline; they admit that no single project will tip the balance on climate change. Rather, they want Obama to use Keystone as a symbolic opportunity to move America away from fossil fuels. On the night Obama won the Iowa caucuses in 2008, he pledged to “free this nation from the tyranny of oil, once and for all.” In his second Inaugural Address, he said, “The path toward sustainable energy sources will be long and sometimes difficult. But America cannot resist this transition, we must lead it.” Speaking of Obama’s coming decision on Keystone, the former senior Administration official pointed out, “Rarely do you get an opportunity to so easily define who you are and what you think the future of this country should look like from an energy perspective.”  
  
In Keystone, Steyer has picked an issue that enables him to win regardless of Obama’s decision. Leading the fight against the pipeline will help him in a future political campaign in his home state. “He’s now won two major ballot campaigns in California, and has an incredibly strong relationship with both labor and environmentalists, in a state where it costs fifty million dollars to be a competitive candidate,” Lehane said. “In terms of California brand and California politics, he’s in a pretty sweet place.”  
  
The stakes for Obama are higher. There are few opportunities to influence the politics of climate change and leave a legacy on the issue. If he intends to lead an effort to write an international treaty on climate change, as he has promised, taking a stand against the oil sands would provide moral authority in those negotiations, Steyer said: “If you want a leadership position, you have to make public, hard decisions, stick with them, and lead. Everyone’s watching this around the world. Everyone knows this is his big choice. You can’t whiff on the big choices and then turn around and say, ‘But, you know, we really are leading on this—except when it’s inconvenient to us.’ ”  
  
Whether or not the pipeline was the correct battle to wage over climate change, it is now Obama’s. “Sometimes you don’t get to pick the perfect fight,” Steyer said. “Sometimes, someone punches you in the face and you’re in the fight.” ♦

# Exxon Faces $2.7 Million Fine For Mayflower, Arkansas Pipeline Spill





AP

* 190

WASHINGTON, Nov 6 (Reuters) - Exxon Mobil Pipeline Co faces a fine of nearly $2.7 million for a pipeline spill of thousands of barrels of Canadian crude oil in an Arkansas suburb last spring, the U.S. pipeline safety office said on Wednesday.

The Pipeline and Hazardous Materials Safety Administration (PHMSA) found nine probable violations of safety rules in the rupture of the nearly 70-year old Pegasus pipeline that forced residents to evacuate their homes.

The 95,000 barrel-per-day pipeline has been shut since March 29 after spilling about 5,000 barrels in Mayflower, Arkansas.

In August, PHMSA said an original manufacturing defect by a now defunct Youngstown, Ohio steel pipe company appeared to have led to the accident.

On Wednesday, the agency said Exxon did not adequately account for risks on the pipeline. “Specifically, the operator failed to include the susceptibility of its Youngstown, pre-1970 ... pipe seam to failures as a risk factor for the Pegasus Pipeline System in the implementation of its integrity management program,” PHMSA said in a letter to Exxon.

Senator Mark Pryor, an Arkansas Democrat, praised the PHMSA’s decision on Wednesday. “Exxon has caused undue harm to Arkansas families and must be held accountable,” he said in a statement.

Exxon said it was disappointed by the decision but was cooperating with the pipeline safety office in its investigation.

It said it was still reviewing the government’s notice and had not determined its course of action. “However, it does appear that PHMSA’s analysis is flawed and the agency has made some fundamental errors,” it said.

Exxon has 30 days to contest the allegations.

InsideClimate News Team Wins Pulitzer Prize for National Reporting  
ICN is the third web-based news organization to win national reporting honors, and the smallest among a trio that includes ProPublica and Huffington Post.  
BY INSIDECLIMATE NEWS STAFF  
APR 15, 2013  
  
InsideClimate News reporters Elizabeth McGowan, Lisa Song and David Hasemyer are the winners of this year's Pulitzer Prize for national reporting.  
  
The trio took top honors in the category for their work on "The Dilbit Disaster: Inside the Biggest Oil Spill You've Never Heard Of," a project that began with a seven-month investigation into the million-gallon spill of Canadian tar sands oil into the Kalamazoo River in 2010. It broadened into an examination of national pipeline safety issues, and how unprepared the nation is for the impending flood of imports of a more corrosive and more dangerous form of oil.  
  
The Pulitzer committee commended the reporters for their "rigorous reports on flawed regulation of the nation's oil pipelines, focusing on potential ecological dangers posed by diluted bitumen (or "dilbit"), a controversial form of oil."  
  
The recent ExxonMobil pipeline spill in Arkansas, which also involved heavy Canadian crude oil, underscores the continuing relevance of this ongoing body of work, as the White House struggles with reaching a decision on the controversial Keystone XL pipeline.  
  
"It is enormously gratifying to have our work recognized with such a high honor, and I'm very proud of our entire team," said David Sassoon, founder and publisher of InsideClimate News. "It's a watershed moment for our non-profit news organization, a good day for environmental journalism, and a hopeful signal for the future of our profession."  
  
InsideClimate News' executive editor Susan White, who conceived and edited the project, said it succeeded because of the combined talents of the three reporters.  
  
"Elizabeth, Lisa and Dave believed deeply in these stories and were determined to do everything they could to make them clear and accessible to our readers," White said. "Elizabeth's ability to persuade people to talk, Lisa's science background and Dave's doggedness made it all work."  
  
"The need to tell this story trumped all else," said Stacy Feldman, co-founder and managing editor. "So we figured out how to successfully balance the daily demands of an online news organization with a deep dive and commitment of resources to this long-term project."  
  
  
Elizabeth McGowan  
  
The Pulitzer-winning entry included a three-part narrative by McGowan and Song, who described the unfolding of the Michigan oil spill from the point of view of those directly involved—residents; state, local and EPA officials at the scene; scientists; and spokesmen with Enbridge Inc., the company responsible for the spill. As the three-year anniversary of the spill approaches, oil is still being removed from the Kalamazoo River.  
  
  
Lisa Song  
  
Song followed up with articles that revealed critical gaps in federal pipeline safety regulations, while Hasemyer focused on how Enbridge's rebuilding of the ruptured pipeline is affecting the lives of people along the route.  
  
  
David Hasemyer  
  
InsideClimate News is five-year-old non-profit, non-partisan news organization that covers clean energy, carbon energy, nuclear energy and environmental science. Its mission is to produce objective stories that give the public and decision-makers the information they need to navigate the heat and emotion of the climate and energy debates. It has grown from a founding staff of two to a mature virtual newsroom of seven full-time professional journalists and a growing network of contributors. It is raising funds to come to full scale in the next two to three years.  
  
The core funders of InsideClimate News are the Rockefeller Brothers Fund, the Marisla Foundation and the Grantham Foundation for the Protection of the Environment.

## **Proposed Removal of Gray Wolves’ Endangered Status a Case Study in the Politicization of Science**

**BY** [**JAMES WILLIAM GIBSON**](http://www.earthisland.org/journal/index.php/oeuvre/james-william-gibson/) **– JUNE 17, 2013**

#### **US Fish and Wildlife Service relies on taxonomical shenanigans to appease wolf haters**

The US Fish and Wildlife Service’s [recent announcement](http://www.fws.gov/graywolfrecovery062013.html) that it is beginning the process for removing gray wolves across the country from the protection of the Endangered Species Act surprised no one. The Fish and Wildlife Service’s mid-1990s reintroduction of gray wolves — a species virtually extirpated in the nineteenth and twentieth centuries — into Yellowstone National Park and central Idaho marked a triumph for conservationists and ranks as one of the most striking fulfillments of the Endangered Species Act. But as I have reported [here](http://www.earthisland.org/journal/index.php/elist/eListRead/wolf_slaughter_continues_in_the_rocky_mountains/) and [here](http://www.earthisland.org/journal/index.php/eij/article/cry_wolf/), the wolves quickly met enemies.

Photo by US Fish and Wildlife ServiceThe Fish and Wildlife Service is making a rather bizarre claim that the agency wasn’t really

serious when, back in 1978, it listed gray wolves as endangered across its historical range.

By the early 2000s a loose coalition of hunters’ groups, outfitters, and ranchers — along with the many disaffected men embracing militia groups, local “sovereignty” and states rights, particularly rights to use public lands without federal regulation — coalesced around the idea that wolves represented icons of the hated federal government. The wolves, they all-but-screamed, constituted lethal threats to deer and elk, livestock, and ultimately, people. The long, bitter wolf war reached its climax in the summer of 2011, when Congress took the unprecedented act of removing the wolf populations of the Northern Rockies from the endangered species list. In May 2011, the Fish and Wildlife Service, weary of the many problems involved in wolf management (or, rather, public relations management), delisted gray wolves in the Western Great Lakes states, where some 4,400 wolves resided. Idaho, Montana and Wyoming subsequently initiated hunts and the use of government marksmen to reduce wolf numbers from around 1,700 to a much lower level.

The FWS’s proposed delisting of gray wolves across the country is simply the continuation of the agency’s long retreat in the face of wolf hater intimidation. Still, it’s important to understand *how* the FWS legitimizes its abandonment of wolves. A close examination of the FWS’ proposed rule change is a case study in the politicization of science. The FWS report excels at cherry picking, choosing certain scientific studies while rejecting others. It’s also an excellent example of bureaucratic hand-waving, simply dismissing long established facts whenever they become inconvenient. The final result is like a weird game of scientific Twister: The FWS bends itself into all sorts of contortions to conform to a political agenda.

Repetitive and often inconsistent, the 215-page proposed rule makes two stunning claims. First, the FWS says “new information on *C. lupus* taxonomy” published in 2012 reveals that the gray wolves (*C. lupus)* do not constitute “either an entire species nor an entire single subspecies.” Simply put, *C. lupus* “does not represent a valid species under the [Endangered Species] Act” — and thus cannot be listed as endangered. Having decided that gray wolves are not a valid species, the FWS then deconstructs the category, saying all wolves formerly called gray actually belong to one of three subspecies of wolves and one new species.

The FWS then makes the rather bizarre claims that the agency wasn’t really serious when, back in 1978, it listed gray wolves as endangered across an historical range covering most of the lower 48 states (except Minnesota, where it was listed as “threatened”). Rather, the agency now claims, the 1978 reclassification “was undertaken to ‘most conveniently’ handle a listing that needed to be revised because of changes in our understanding of gray wolf taxonomy, and in recognition of the fact that individual wolves sometimes cross subspecies [geographic] boundaries.” Now, the FWS argues, “this generalized approach to the listing … was misread by some publics as an expression of a larger wolf recovery not required by the Act and never intended by the Service.” Evidently the FWS never really had wolf recovery as a goal.

In place of this unintended “larger wolf recovery,” the FWS in its newly proposed rule lists three subspecies and alludes to one new wolf species, each with a limited population size and a clearly limited range. Conceptually, deconstructing the gray wolf category constitutes a containment strategy, a way to scientifically legitimize small, remnant wolf populations restricted to finite ranges; wide-ranging wolf dispersal is eliminated as a possibility. This containment appeases politicians, government administrators, businesses, ranchers and hunters — all those who fear disruption from wolf recovery.

What the FWS used to call the gray wolves living in Northern Rocky Mountains, — a “Distinct Population Segment” in biology nomenclature — is now conceptualized as the wolf subspecies, *C. l. occidentalis.*  Wolves classified as *occidentalis* , according to the FWS, “currently occupy nearly the entire historical range of the species.” In what I can only call an act of scientific chutzpah, the FWS therefore argues that these wolves are considered fully recovered. And since they are fully recovered and are occupying their historical range, then any *occidentalis*  that disperse to Washington, Oregon or Colorado are classified as a non-native species. Although individual states might choose to list them as endangered—Washington and Oregon have done this — they will not qualify as a *federally* protected Distinct Population Segment of gray wolves. That’s because the FWS no longer considers gray wolves to be a valid species. Nice circular logic, that.

The FWS is also playing this same shell game in the Western Great Lakes states of Minnesota, Michigan, and Wisconsin. Wolves living there formerly were classified as a Distinct Population Segment of gray wolves. It used to be that if any of these wolves migrated outside these states — say to North and South Dakota — then they received protection by the Endangered Species Act. Now, under the proposed rule change, the wolves in the Western Great Lakes are classified as *Canis Iupus nubilus*. Although the FWS acknowledges that *C. I. nubilus* does not occupy all of its historical range — a vast area that once included the Southern Rocky Mountains, the Colorado Plateau, and the coastal ranges of the Pacific Northwest — the agency still makes the case that the subspecies is present in sufficient numbers in the Western Great Lakes and Canada to be considered fully recovered. So it shouldn’t be protected by the ESA, either.

Interestingly, although the FWS considers eastern Canada to be part of the range of *C. l. nubilus,* it now argues that no wolves of this subspecies ever settled south of Quebec, in New England and upstate New York. Instead, the FWS says an entirely different wolf species, *Canis lycaon,* once lived there. No population estimates of *Canis lycaon* are given; nor does the FWS name areas where packs have been sighted. The FWS does not even propose listing at the present, saying “we must first address outstanding science and policy questions.” It’s not at all clear if real wolves belonging to *Canis lycaon* exist. But if the Northeast is classified as belonging to the historical range of *Canis lycaon,* then any gray wolves *(C. l. nubilus)* that migrate into the region will not be protected by the ESA. Once again, the FWS proposes creating a new species in order to remove protection for another one.

(If you’re having problem tracking all of these different species and subspecies, don’t feel bad. All of the taxonomical shenanigans seem designed to confuse the public.)

There is one bright spot in this otherwise gloomy picture. One subspecies of the supposedly no longer valid *Canis lupis* will receive protection under the proposed rule: the Mexican wolf, or *C. l. baileyi.*  A tiny remnant population of Mexican wolves — abount 75 — live in eastern Arizona and western New Mexico. Another 250 live in captivity in the US and Mexico awaiting reintroduction to the wild. The FWS wants to maintain the endangered listing for *C. l. baileyi,* saying it is “in danger of extinction throughout all of its range due to small population size, illegal killing, inbreeding, and the cumulative effect of all threats.” The FWS says its interim goal is to support 100 wolves, at first glance a significant improvement.

But it remains uncertain how — or whether — the FWS proposes to bolster the population of Mexican wolves. In 2011 a subdivision of the FWS tasked with developing a plan for Mexican wolf recovery concluded that the agency would need needed three distinct recovery areas connected by corridors across parts of Arizona, New Mexico, Colorado, Utah, and Texas, with each area to become home for 200 to 350 wolves. The head of the Mexican Wolf Recovery Team immediately came under massive political pressure from state wildlife agencies and the governor of Utah, who made a range of political and economic arguments to curtail the scientists’ recovery plan. Unsurprisingly, the June 7 proposed rule says nothing about what full recovery would entail.

[Public Employees for Environmental Responsibility (PEER](http://www.peer.org/)) has filed a lawsuit against the FWS under the Freedom of Information Act asking for all documents related to the June 7 rule on wolf delisting. PEER executive director Jeff Ruch thinks his group will begin to receive documents by late July. “We’ll post all their dirty laundry on our website,” he says. PEER will thus provide a preview of the documentary record long before the Fish and Wildlife Service completes its year-long rule-making process. If the rule becomes finalized as official policy and gray wolves abolished as a species, conversation organizations will challenge it in court.

Some wolf advocates hope the taxonomical shell game will be so crude and obvious that public outcry over wolf delisting will persuade the Obama administration to withdraw the proposal. Noah Greenwald from the [Center of Biological Diversity](http://www.biologicaldiversity.org/) argues, “ The majority of Americans support protection of endangered species, support protection for wolves. I would like to think the Obama administration is not tone deaf.”

Nabeki of the [Howling for Justice blog](http://howlingforjustice.wordpress.com/) concurs. She told me: “This may just backfire on them. It’s so transparent to delist wolves in states where they don’t exist. It will open up people’s eyes.”

# London Array

From Wikipedia, the free encyclopedia

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| --- | --- |
| **London Array offshore wind farm** | |
| London Array 02.jpg  The London Array under construction in 2009. | |
| London Array is located in England  London Array  Location of London Array offshore wind farm in England | |
| **Country** | England, [United Kingdom](https://en.wikipedia.org/wiki/United_Kingdom) |
| **Location** | 7 mi (11 km) off [North Foreland](https://en.wikipedia.org/wiki/North_Foreland), [Kent](https://en.wikipedia.org/wiki/Kent) |
| **Coordinates** | Show location on an interactive map[51.626°N 1.495°E](https://tools.wmflabs.org/geohack/geohack.php?pagename=London_Array&params=51.626_N_1.495_E_type:landmark_region:GB_dim:100000)[Coordinates](https://en.wikipedia.org/wiki/Geographic_coordinate_system): Show location on an interactive map[51.626°N 1.495°E](https://tools.wmflabs.org/geohack/geohack.php?pagename=London_Array&params=51.626_N_1.495_E_type:landmark_region:GB_dim:100000) |
| **Status** | Operational |
| **Construction began** | March 2011 |
| [**Commission date**](https://en.wikipedia.org/wiki/Project_commissioning) | April 2013 |
| **Construction cost** | £1.8 billion (€2.2 billion) |
| **Owner(s)** | Wind farm:   * [E.ON UK Renewables](https://en.wikipedia.org/wiki/E.ON_UK) (30%) * [DONG Energy](https://en.wikipedia.org/wiki/DONG_Energy) (25%) * [Caisse de dépôt et placement du Québec](https://en.wikipedia.org/wiki/Caisse_de_d%C3%A9p%C3%B4t_et_placement_du_Qu%C3%A9bec) (25%) * [Masdar](https://en.wikipedia.org/wiki/Abu_Dhabi_Future_Energy_Company) (20%)   Transmission assets:   * Blue Transmission London Array Limited ([Barclays](https://en.wikipedia.org/wiki/Barclays)/[Mitsubishi Corporation](https://en.wikipedia.org/wiki/Mitsubishi_Corporation)) |
| **Wind farm** | |
| [**Type**](https://en.wikipedia.org/wiki/Wind_farm#Types) | Offshore |
| **Site area** | 122 km2[[1]](https://en.wikipedia.org/wiki/London_Array#cite_note-4coffshore-1) |
| **Max. water depth** | 25 m[[1]](https://en.wikipedia.org/wiki/London_Array#cite_note-4coffshore-1) |
| **Distance from shore** | 20 km[[1]](https://en.wikipedia.org/wiki/London_Array#cite_note-4coffshore-1) |
| **Hub height** | 87 m[[1]](https://en.wikipedia.org/wiki/London_Array#cite_note-4coffshore-1) |
| **Rotor diameter** | 120 m[[1]](https://en.wikipedia.org/wiki/London_Array#cite_note-4coffshore-1) |
| **Power generation** | |
| **Units operational** | 175 × 3.6 MW |
| **Make and model** | [Siemens Wind Power](https://en.wikipedia.org/wiki/Siemens_Wind_Power) SWT-3.6-120 |
| **Units cancelled** | 166 × 3.6 MW |
| [**Nameplate capacity**](https://en.wikipedia.org/wiki/Nameplate_capacity) | 630 [MW](https://en.wikipedia.org/wiki/Megawatt) |
| [**Capacity factor**](https://en.wikipedia.org/wiki/Capacity_factor) | 45.3% (2015)[[2]](https://en.wikipedia.org/wiki/London_Array#cite_note-2) |
| [**2015 gross output**](https://en.wikipedia.org/wiki/Gross_generation) | 2,500 [GW·h](https://en.wikipedia.org/wiki/GW%C2%B7h) |
| **Website**  [www.londonarray.com](http://www.londonarray.com/) | |

The **London Array** is a 175 turbine 630 MW [Round 2 offshore wind farm](https://en.wikipedia.org/wiki/Round_2_wind_farm) located 20 km off the [Kent](https://en.wikipedia.org/wiki/Kent) coast in the outer [Thames Estuary](https://en.wikipedia.org/wiki/Thames_Estuary) in the [United Kingdom](https://en.wikipedia.org/wiki/United_Kingdom). It is the largest offshore wind farm in the world, and the largest wind farm in Europe by megawatt capacity.

Construction of phase 1 of the wind farm began in March 2011 and was completed by mid 2013, being formally inaugurated by the [Prime Minister of the United Kingdom](https://en.wikipedia.org/wiki/Prime_Minister_of_the_United_Kingdom), [David Cameron](https://en.wikipedia.org/wiki/David_Cameron) on 4 July 2013.

The second phase of the project was refused planning consent in 2014 due to concerns on the impact to sea birds.

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* [2History](https://en.wikipedia.org/wiki/London_Array#History)
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## Description[[edit](https://en.wikipedia.org/w/index.php?title=London_Array&action=edit&section=1)]

The wind farm site is more than 20 kilometres (12 mi) off the [North Foreland](https://en.wikipedia.org/wiki/North_Foreland) on the [Kent](https://en.wikipedia.org/wiki/Kent) coast in the area between Long Sand and [Kentish Knock](https://en.wikipedia.org/wiki/Kentish_Knock_(England)), between [Margate](https://en.wikipedia.org/wiki/Margate) in Kent and [Clacton](https://en.wikipedia.org/wiki/Clacton) in Essex.[[3]](https://en.wikipedia.org/wiki/London_Array#cite_note-pim-3) The site has water depths of no more than 25 m[[1]](https://en.wikipedia.org/wiki/London_Array#cite_note-4coffshore-1) and is mostly away from shipping lanes.[[4]](https://en.wikipedia.org/wiki/London_Array#cite_note-4)

The first phase consisted of 175 [Siemens Wind Power](https://en.wikipedia.org/wiki/Siemens_Wind_Power) SWT-3.6 turbines and two offshore substations, giving a wind farm with a peak rated power of 630 MW.[[5]](https://en.wikipedia.org/wiki/London_Array#cite_note-nseng-5) Each turbine and offshore substation is erected on a [monopile foundation](https://en.wikipedia.org/wiki/Monopile_foundation), and connected together by 210 km (130 mi) of 33 kV array cables. The two offshore substations are connected to an onshore substation at Cleve Hill (near [Graveney](https://en.wikipedia.org/wiki/Graveney)) on the north Kent coast, by four 150 kV subsea export cables, in total 220 km (140 mi).[[5]](https://en.wikipedia.org/wiki/London_Array#cite_note-nseng-5) It is named after London because the power goes to the London grid.[[6]](https://en.wikipedia.org/wiki/London_Array#cite_note-6)

The smaller [Thanet Wind Farm](https://en.wikipedia.org/wiki/Thanet_Wind_Farm) is to the south of it.

The array is intended to reduce annual [CO2](https://en.wikipedia.org/wiki/CO2) emissions by about 900,000 tons, equal to the emissions of 300,000 passenger cars.[[7]](https://en.wikipedia.org/wiki/London_Array#cite_note-7)

## History[[edit](https://en.wikipedia.org/w/index.php?title=London_Array&action=edit&section=2)]

In 2001 environmental studies identified areas of the outer [Thames Estuary](https://en.wikipedia.org/wiki/Thames_Estuary) as potential sites for offshore wind farm;[[8]](https://en.wikipedia.org/wiki/London_Array#cite_note-la6-8) the [Department of Trade and Industry](https://en.wikipedia.org/wiki/Department_of_Trade_and_Industry_(United_Kingdom)) published the paper *Future Offshore — A Strategic Framework for the Offshore Wind Industry*, which identified the outer Thames Estuary as one of three potential areas for future wind farm development ([Round 2 wind farms](https://en.wikipedia.org/wiki/Round_2_wind_farm)).[[9]](https://en.wikipedia.org/wiki/London_Array#cite_note-9) The [Crown Estate](https://en.wikipedia.org/wiki/Crown_Estate) awarded a 50-year lease to *London Array Ltd.* (a consortium of E.ON UK Renewables, Shell WindEnergy, and CORE Limited.[[note 1]](https://en.wikipedia.org/wiki/London_Array#cite_note-12)) in December 2003.[[8]](https://en.wikipedia.org/wiki/London_Array#cite_note-la6-8)[[12]](https://en.wikipedia.org/wiki/London_Array#cite_note-bbc2005-13) A planning application was submitted in 2005,[[12]](https://en.wikipedia.org/wiki/London_Array#cite_note-bbc2005-13)[[13]](https://en.wikipedia.org/wiki/London_Array#cite_note-14) which was approved in December 2006.[[14]](https://en.wikipedia.org/wiki/London_Array#cite_note-15) Planning permission for the onshore electricity substation was received in November 2007.[[11]](https://en.wikipedia.org/wiki/London_Array#cite_note-onfarm1-11)

In May 2008, Shell announced that it was pulling out of the project.[[15]](https://en.wikipedia.org/wiki/London_Array#cite_note-16) It was announced in July 2008 that E.ON UK and DONG Energy would buy Shell's stake.[[16]](https://en.wikipedia.org/wiki/London_Array#cite_note-17)Subsequently on 16 October 2008, London Array announced the [Abu Dhabi](https://en.wikipedia.org/wiki/Abu_Dhabi) based Masdar would join E.ON as a joint venture party in the scheme. Under the agreement, Masdar purchased 40% of E.ON's half share of the scheme, giving Masdar a 20% stake in the project overall.[[17]](https://en.wikipedia.org/wiki/London_Array#cite_note-18)[[18]](https://en.wikipedia.org/wiki/London_Array#cite_note-masdar-19) The resultant ownership was 50% [DONG Energy](https://en.wikipedia.org/wiki/DONG_Energy), 30% [E.ON UK Renewables](https://en.wikipedia.org/wiki/E.ON_UK) and 20% [Masdar](https://en.wikipedia.org/wiki/Abu_Dhabi_Future_Energy_Company).[[19]](https://en.wikipedia.org/wiki/London_Array#cite_note-ingdong-20)

In March 2009, the backers agreed on an initial investment of €2.2 billion.[[20]](https://en.wikipedia.org/wiki/London_Array#cite_note-21) Financing of phase 1 was achieved through the [European Investment Bank](https://en.wikipedia.org/wiki/European_Investment_Bank) and the Danish Export Credit Fund with £250 million.[[19]](https://en.wikipedia.org/wiki/London_Array#cite_note-ingdong-20)

In 2013, in response to [Ofgem](https://en.wikipedia.org/wiki/Ofgem) "Offshore Transmission Owner" regulations, the consortium divested the electrical transmission assets of the wind farm (valued at £459 million) to "Blue Transmission London Array Limited" – an entity incorporated by Barclays Infrastructure Funds Management Limited ([Barclays](https://en.wikipedia.org/wiki/Barclays)) and Diamond UK Transmission Corporation ([Mitsubishi Corporation](https://en.wikipedia.org/wiki/Mitsubishi_Corporation) subsidiary).[[21]](https://en.wikipedia.org/wiki/London_Array#cite_note-22)



Satellite image of the [Thames Estuary](https://en.wikipedia.org/wiki/Thames_Estuary) with London Array top right, and neighbouring wind farm areas.

In January 2014 Dong sold half its stake to Quebec public pension plan manager [Caisse de dépôt et placement du Québec](https://en.wikipedia.org/wiki/Caisse_de_d%C3%A9p%C3%B4t_et_placement_du_Qu%C3%A9bec) ("La Caisse").[[22]](https://en.wikipedia.org/wiki/London_Array#cite_note-23)

At the time of its construction it was the largest offshore wind farm in the world.[[23]](https://en.wikipedia.org/wiki/London_Array#cite_note-24)

### **Construction and commissioning**[[edit](https://en.wikipedia.org/w/index.php?title=London_Array&action=edit&section=3)]

Offshore work began in March 2011;[[24]](https://en.wikipedia.org/wiki/London_Array#cite_note-offshore051112-25) the first foundation was installed in March 2011[[25]](https://en.wikipedia.org/wiki/London_Array#cite_note-26)

Turbines were supplied by [Siemens Wind Power](https://en.wikipedia.org/wiki/Siemens_Wind_Power).[[26]](https://en.wikipedia.org/wiki/London_Array#cite_note-siemens-27) Their foundations were built by the joint-venture between Per Aarsleff and [Bilfinger Berger Ingenieurbau GmbH](https://en.wikipedia.org/w/index.php?title=Bilfinger_Berger_Ingenieurbau_GmbH&action=edit&redlink=1). The same company supplied and installed the monopiles.[[27]](https://en.wikipedia.org/wiki/London_Array#cite_note-upstream141209-28)Generators were installed by MPI and [A2SEA](https://en.wikipedia.org/wiki/A2SEA) by using an installation vessel [TIV *MPI Adventure*](https://en.wikipedia.org/wiki/TIV_MPI_Adventure) and a [jack-up](https://en.wikipedia.org/wiki/Jack-up) barge *Sea Worker*.[[28]](https://en.wikipedia.org/wiki/London_Array#cite_note-array040210-29) Two offshore substations were designed, fabricated and installed by Future Energy, a joint venture between Fabricom, Iemants and Geosea, while electrical systems and onshore substation work was undertaken by Siemens Transmission & Distribution. The subsea export cable was supplied by [Nexans](https://en.wikipedia.org/wiki/Nexans) and array cables by JDR Cable Systems. The array cables and the export cables were installed by VSMC.[[27]](https://en.wikipedia.org/wiki/London_Array#cite_note-upstream141209-28)

The wind farm started producing electricity at the end of October 2012.[[24]](https://en.wikipedia.org/wiki/London_Array#cite_note-offshore051112-25) All 175 turbines of phase 1 were confirmed fully operational on 8 April 2013,[[29]](https://en.wikipedia.org/wiki/London_Array#cite_note-renewableuk-30) and the wind farm was formally inaugurated by the Prime minister [David Cameron](https://en.wikipedia.org/wiki/David_Cameron) on 4 July 2013.[[30]](https://en.wikipedia.org/wiki/London_Array#cite_note-20130704gulfnews-31) In December 2015 it produced 369 GWh; a monthly [capacity factor](https://en.wikipedia.org/wiki/Capacity_factor) of 78.9%. It produced 2.5 TWh in 2015. During two days of January 2016, production varied from 3 MW to 619 MW.[[31]](https://en.wikipedia.org/wiki/London_Array#cite_note-32)[[32]](https://en.wikipedia.org/wiki/London_Array#cite_note-33)

### **Phase 2**[[edit](https://en.wikipedia.org/w/index.php?title=London_Array&action=edit&section=4)]

A second phase was planned which would have seen a further 166 turbines installed to increase the capacity to 1000 MW.[[33]](https://en.wikipedia.org/wiki/London_Array#cite_note-bbc140219-34) However, the second phase was scaled back and finally cancelled in February 2014 after concerns were raised by the [Royal Society for the Protection of Birds](https://en.wikipedia.org/wiki/Royal_Society_for_the_Protection_of_Birds) about its effect on a local population of [red-throated divers](https://en.wikipedia.org/wiki/Red-throated_diver).[[33]](https://en.wikipedia.org/wiki/London_Array#cite_note-bbc140219-34)[[34]](https://en.wikipedia.org/wiki/London_Array#cite_note-35)

Ok Tedi environmental disaster

From Wikipedia, the free encyclopedia

The **Ok Tedi environmental disaster** caused severe harm to the environment along 1,000 kilometres (620 mi) of the [Ok Tedi River](https://en.wikipedia.org/wiki/Ok_Tedi_River) and the [Fly River](https://en.wikipedia.org/wiki/Fly_River) in the [Western Province of Papua New Guinea](https://en.wikipedia.org/wiki/Western_Province_(Papua_New_Guinea)) between about 1984 and 2013. The lives of 50,000 people have been disrupted. One of the worst [environmental disasters caused by humans](https://en.wikipedia.org/wiki/Environmental_disaster#List_of_environmental_disasters_caused_by_humans), it is a consequence of the discharge of about two billion tons of untreated mining waste into the Ok Tedi from the [Ok Tedi Mine](https://en.wikipedia.org/wiki/Ok_Tedi_Mine), an open pit mine in the [Western Province of Papua New Guinea](https://en.wikipedia.org/wiki/Western_Province_(Papua_New_Guinea)).

This mining pollution, due to the collapse of the Ok Tedi [tailings dam](https://en.wikipedia.org/wiki/Tailings_dam) system in 1984 and the lack of a proper waste retention facility, was the subject of [class action](https://en.wikipedia.org/wiki/Class_action) [litigation](https://en.wikipedia.org/wiki/Litigation), naming [Ok Tedi Mining Limited](https://en.wikipedia.org/wiki/Ok_Tedi_Mining_Limited) and [BHP Billiton](https://en.wikipedia.org/wiki/BHP_Billiton) and brought by local landowners. Villagers downstream from Ok Tedi in the Fly River system in the [Middle Fly District](https://en.wikipedia.org/wiki/Middle_Fly_District,_Western_Province) and the southern and central areas of the [North Fly District](https://en.wikipedia.org/wiki/North_Fly_District,_Western_Province), in particular, believe that the effect on their livelihood from this disaster far outweighs the benefits they have received from the mine's presence in their area.

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## Environmental impact[[edit](https://en.wikipedia.org/w/index.php?title=Ok_Tedi_environmental_disaster&action=edit&section=1)]

In 1999, BHP reported that 90 million tons of mine waste was annually discharged into the river for more than ten years and destroyed downstream villages, agriculture and fisheries. Mine wastes were deposited along 1,000 kilometres (620 mi) of the Ok Tedi and the Fly River below its confluence with the Ok Tedi, and over an area of 100 square kilometres (39 sq mi). BHP's CEO, Paul Anderson, said that the [Ok Tedi Mine](https://en.wikipedia.org/wiki/Ok_Tedi_Mine) was "not compatible with our environmental values and the company should never have become involved."[[1]](https://en.wikipedia.org/wiki/Ok_Tedi_environmental_disaster#cite_note-1) As of 2006, mine operators continued to discharge 80 million tons of [tailings](https://en.wikipedia.org/wiki/Tailings), [overburden](https://en.wikipedia.org/wiki/Overburden) and mine-induced erosion into the river system each year. About 1,588 square kilometres (613 sq mi) of forest has died or is under stress. As many as 3,000 square kilometres (1,200 sq mi) may eventually be harmed, an area equal to the U.S. state of [Rhode Island](https://en.wikipedia.org/wiki/Rhode_Island) or the Danish island of [Funen](https://en.wikipedia.org/wiki/Funen).[[2]](https://en.wikipedia.org/wiki/Ok_Tedi_environmental_disaster#cite_note-Key-2)

Following heavy rainfall, mine tailings are swept into the surrounding rain forest, swamps and creeks, and have left behind 30 square kilometers of dead forest. Thick gray sludge from the mine is visible throughout the Fly River system, although its effects downriver are not as severe.[[3]](https://en.wikipedia.org/wiki/Ok_Tedi_environmental_disaster#cite_note-3) Chemicals from the tailings killed or contaminated fish, although they are still eaten by the people of the surrounding villages. However, fish counts decrease closer to the mine. The massive amount of mine-derived waste dumped into the river exceeded its carrying capacity. This dumping resulted in the river bed being raised 10 m, causing a relatively deep and slow river to become shallower and develop rapids, thereby disrupting indigenous transportation routes.[[4]](https://en.wikipedia.org/wiki/Ok_Tedi_environmental_disaster#cite_note-4) Flooding, caused by the raised riverbed, left a thick layer of contaminated mud on the flood plain among plantations of taro, bananas and sago palm that are the staples of the local diet. About 1300 square kilometers were damaged in this way. The concentration of copper in the water is about 30 times above the standard level, but it is below the [World Health Organisation](https://en.wikipedia.org/wiki/World_Health_Organisation) (WHO) standards.[[5]](https://en.wikipedia.org/wiki/Ok_Tedi_environmental_disaster#cite_note-Marychurch-5)

The original plans included an Environmental Impact Statement that required a tailings dam be built. This would allow heavy metals and solid particles to settle, before releasing the clean ‘high-water’ into the river system where remaining contaminants would be diluted. In 1984 an earthquake caused the half built dam to collapse. The company continued operations without the dam, initially because BHP argued that it would be too expensive to rebuild it. Subsequently, the PNG government decided a dam wasn’t necessary, in the wake of the closure of the [Panguna](https://en.wikipedia.org/wiki/Panguna) mine.[[*citation needed*](https://en.wikipedia.org/wiki/Wikipedia:Citation_needed)]

Most of Papua New Guinea's land is held under a system of [native title](https://en.wikipedia.org/wiki/Customary_land_title), with ownership divided amongst many small clans, while the central government retains control over how resources that lie under the ground are used.

There are no waste retention facilities on the premises. This allowed all ore processing residues, waste rock and overburden to be discharged into the Ok Tedi River.[[6]](https://en.wikipedia.org/wiki/Ok_Tedi_environmental_disaster#cite_note-6)

## Aftermath[[edit](https://en.wikipedia.org/w/index.php?title=Ok_Tedi_environmental_disaster&action=edit&section=2)]

In the 1990s the communities of the lower [Fly Region](https://en.wikipedia.org/wiki/Western_Province,_Papua_New_Guinea), including the [Yonggom](https://en.wikipedia.org/w/index.php?title=Yonggom&action=edit&redlink=1) people,[[7]](https://en.wikipedia.org/wiki/Ok_Tedi_environmental_disaster#cite_note-7) sued BHP and received US$28.6 million in an out-of-court settlement, which was the culmination of an enormous public-relations campaign against the company by environmental groups. As part of the settlement a (limited) dredging operation was put in place and efforts were made to rehabilitate the site around the mine. However the mine is still in operation and waste continues to flow into the river system. BHP was granted legal indemnity from future mine related damages.

In January 2007 PNG lawyer Camillus Narokobi lodged a lawsuit on behalf of 3,000 villagers known as the Ninggerum people who live near the [Birim River](https://en.wikipedia.org/wiki/Birim_River_(New_Guinea)), a tributary of the Ok Tedi River. He is seeking US$4 billion in damages.[[8]](https://en.wikipedia.org/wiki/Ok_Tedi_environmental_disaster#cite_note-The_Age_Jan_20_2007-8)

The Ok Tedi Mine was scheduled to close in 2013.[[9]](https://en.wikipedia.org/wiki/Ok_Tedi_environmental_disaster#cite_note-9) However, the PNG Government has taken over control of the mine and with support of local community, the mine life was extended.[[10]](https://en.wikipedia.org/wiki/Ok_Tedi_environmental_disaster#cite_note-10)[[11]](https://en.wikipedia.org/wiki/Ok_Tedi_environmental_disaster#cite_note-11) Until that time two thirds of the profits go into a long-term fund to enable the mine to continue to contribute to the PNG economy for up to half a century after it closes. The balance is allocated to current development programs in the local area (Western Province) and PNG more generally. Experts have predicted that it will take 300 years to clean up the toxic contamination.[[8]](https://en.wikipedia.org/wiki/Ok_Tedi_environmental_disaster#cite_note-The_Age_Jan_20_2007-8)

## Mine Life Extension and Community Support[[edit](https://en.wikipedia.org/w/index.php?title=Ok_Tedi_environmental_disaster&action=edit&section=3)]

In 2013, the PNG Government seized 100% ownership of Ok Tedi Mine[[12]](https://en.wikipedia.org/wiki/Ok_Tedi_environmental_disaster#cite_note-12) and repealed laws that would allow people to sue mining giant BHP Billiton over environmental damage. Ok Tedi Mining Limited launched the OT2025 project that was focused on transitioning the business to a smaller operation in preparation for Mine Life Extension.

Community consent for the mine’s life to be extended to 2025 was endorsed by the Mine Associated Communities, which is made up of 156 villages, through the signing of the respective Community Mine Continuation Extension Agreements by the Community representatives and OTML at the end of 2012 and beginning of 2013. The signing of the Agreements facilitated the Company to commence planning for the MLE project throughout 2013. [[13]](https://en.wikipedia.org/wiki/Ok_Tedi_environmental_disaster#cite_note-13)

# Cats in New Zealand

From Wikipedia, the free encyclopedia



The [Stephens Island wren](https://en.wikipedia.org/wiki/Stephens_Island_wren) became extinct within two years of the introduction of cats on to [Stephens Island](https://en.wikipedia.org/wiki/Stephens_Island,_New_Zealand).

(An illustration from Walter Lawry Buller's *A History of the Birds of New Zealand* published in 1905.)

[Cats](https://en.wikipedia.org/wiki/Cat) are a popular pet in [New Zealand](https://en.wikipedia.org/wiki/New_Zealand). Cat ownership is occasionally raised as a controversial [conservation issue](https://en.wikipedia.org/wiki/Environmental_issue) due to the predation of endangered species such as birds and lizards by [feral cats](https://en.wikipedia.org/wiki/Feral_cats).

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## Domesticated cats[[edit](https://en.wikipedia.org/w/index.php?title=Cats_in_New_Zealand&action=edit&section=1)]

The domestic cat (*Felis catus*) was introduced into New Zealand by European settlers in the mid 19th century. As of 2011, there are an estimated 1.419 million domestic cats in New Zealand, with almost half of all households owning at least one and an average of 1.8 cats per household.[[1]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-1)

Because of the effects of predation on New Zealand wildlife, domestic cat ownership is sometimes a contentious issue. Since the 1990s, cat-free subdivisions have occasionally been established to prevent predation occurring within nearby [natural areas](https://en.wikipedia.org/wiki/Natural_environment) by domestic cats. In 1996 a cat-free subdivision was established at [Waihi Beach](https://en.wikipedia.org/wiki/Waihi_Beach), a landmark decision by the [Western Bay of Plenty District Council](https://en.wikipedia.org/wiki/Western_Bay_of_Plenty_District_Council). It was sought by [Forest and Bird](https://en.wikipedia.org/wiki/Forest_and_Bird) and the [Department of Conservation](https://en.wikipedia.org/wiki/New_Zealand_Department_of_Conservation) to protect wildlife in a nearby salt marsh.[[2]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-2)

In 2012 the operators of the [Zealandia](https://en.wikipedia.org/wiki/Zealandia_(wildlife_sanctuary)) wildlife sanctuary called for cat owners not to replace their pet when they die as a means of reducing the cat population.[[3]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-3) In 2013, [Gareth Morgan](https://en.wikipedia.org/wiki/Gareth_Morgan_(economist)), an economist and philanthropist, caused an international furore when he called for cats to be wiped out. He launched the "Cats To Go" website to support the stance.[[4]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-4) It is suggested that owners could euthanase their cats but it is not seen as necessary.[[5]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-AP-5) Some conservationists supported the stance taken by Morgan.[[6]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-6)

Even though cats control [rodents](https://en.wikipedia.org/wiki/Rodent) which also prey on native wildlife, and thus have a protective role, the [precautionary principle](https://en.wikipedia.org/wiki/Precautionary_principle) is recommended in certain cases such as adjacent to natural areas and in outer suburbs of cities.[[7]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-7)

A study done on patients in [Auckland](https://en.wikipedia.org/wiki/Auckland) with acute [toxoplasmosis](https://en.wikipedia.org/wiki/Toxoplasmosis), an infectious disease carried by cats and transmitted to humans via cat feces (as well as via other pathways), is now thought to be more debilitating than initially realised. The patients had a high rate of fatigue, headaches, and had a difficulty with concentration.[[8]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-8)[[9]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-Wong2012-9)

## Feral cats[[edit](https://en.wikipedia.org/w/index.php?title=Cats_in_New_Zealand&action=edit&section=2)]

|  |  |  |
| --- | --- | --- |
| **Island** | **Date**  **completed** | **Notes** |
| [Cuvier Island](https://en.wikipedia.org/wiki/Cuvier_Island) | 1964 |  |
| [Herekopare](https://en.wikipedia.org/wiki/Titi_/_Muttonbird_Islands) | 1970 |  |
| [Kapiti Island](https://en.wikipedia.org/wiki/Kapiti_Island) | 1934 | Now a nature reserve |
| [Little Barrier Island](https://en.wikipedia.org/wiki/Little_Barrier_Island) | 1980 | Now a nature reserve |
| [Motuihe](https://en.wikipedia.org/wiki/Motuihe) | 1978–1979 |  |
| [Stephens Island](https://en.wikipedia.org/wiki/Stephens_Island,_New_Zealand) | 1925 | Cats caused the extinction of an endemic bird |
| [Tiritiri Matangi Island](https://en.wikipedia.org/wiki/Tiritiri_Matangi_Island) | 1970s | Now an open sanctuary |

Apart from three bat species New Zealand did not have any land-based mammals until settlement by Māori and European people. As a consequence birds and even insects took over the ecological niche normally filled by mammals. The introduced mammals, including cats, became [invasive species](https://en.wikipedia.org/wiki/Invasive_species) that severely affected the native wildlife.

It is estimated that [feral cats](https://en.wikipedia.org/wiki/Feral_cat) have been responsible for the extinction of six endemic bird species and over 70 localised subspecies, as well as depleting the populations of bird and lizard species.[[11]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-11) The extinction of the [Stephens Island wren](https://en.wikipedia.org/wiki/Stephens_Island_wren) is a case of bird extinction due to predation by cats. The extinction of the birds is often blamed on the lighthouse keeper's cat alone but cats had become established in 1894 when a single pregnant female landed on the island so it is likely that it was a result of the whole cat population.[[12]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-12)

Cats are problematic on other islands. It was speculated that cats would have caused the extinction of [kakapo](https://en.wikipedia.org/wiki/Kakapo) on [Stewart Island / Rakiura](https://en.wikipedia.org/wiki/Stewart_Island_/_Rakiura) had the birds not been moved to other islands. The introduction of cats on to [Mangere](https://en.wikipedia.org/wiki/Mangere_Island), [Herekopare](https://en.wikipedia.org/wiki/Titi_/_Muttonbird_Islands) and [Raoul Islands](https://en.wikipedia.org/wiki/Raoul_Island) caused localised extinctions of bird species. After cats were eradicated from [Little Barrier Island](https://en.wikipedia.org/wiki/Little_Barrier_Island) the local bird populations increased, and [saddlebacks](https://en.wikipedia.org/wiki/Saddleback_(bird)) were successfully reintroduced.

Feral cats are the principal threat to the critically endangered [black stilt](https://en.wikipedia.org/wiki/Black_stilt)[[13]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-wilson2004-13) and as of February 2010 only 85 birds remain, largely in the [Mackenzie Basin](https://en.wikipedia.org/wiki/Mackenzie_Basin). After the illegal introduction of [rabbit haemorrhagic disease](https://en.wikipedia.org/wiki/Rabbit_haemorrhagic_disease) (RCD) into New Zealand rabbit numbers were reduced dramatically for a period of time. When the rabbit numbers in the Mackenzie Basin were low, feral cats switched from preying on rabbits to preying on native fauna, including the black stilt. A trapping programme for cats and other predators that threatened the black stilt population was instigated by the Department of Conservation.[[14]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-Keedwell2001-14)

The impact of feral cats on species other than birds is not as well documented[[13]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-wilson2004-13) although in 2010 the Department of Conservation discovered that a feral cat was responsible for killing over 100 endangered [short-tailed bats](https://en.wikipedia.org/wiki/Mystacinidae) over a seven-day period in a forested area on the southern slope of [Mount Ruapehu](https://en.wikipedia.org/wiki/Mount_Ruapehu).[[15]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-15)

## Phantom big cat sightings[[edit](https://en.wikipedia.org/w/index.php?title=Cats_in_New_Zealand&action=edit&section=3)]

Since the late 1990s, big cat sightings ([phantom cats](https://en.wikipedia.org/wiki/Phantom_cat)) have been reported in widely separated parts of New Zealand, in both the [North](https://en.wikipedia.org/wiki/North_Island) and [South](https://en.wikipedia.org/wiki/South_Island) Islands.[[16]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-nzherald-16) There have been several unverified [panther](https://en.wikipedia.org/wiki/Black_panther) sightings in Mid-Canterbury near [Ashburton](https://en.wikipedia.org/wiki/Ashburton,_New_Zealand) and in the nearby foothills of the [Southern Alps](https://en.wikipedia.org/wiki/Southern_Alps_(New_Zealand)),[[17]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-17)[[18]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-18)[[19]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-19) but searches conducted there in 2003 by the Ministry of Agriculture and Forestry found no corroborating physical evidence.[[16]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-nzherald-16)

## Policy[[edit](https://en.wikipedia.org/w/index.php?title=Cats_in_New_Zealand&action=edit&section=4)]

The [Animal Welfare Act 1999](https://en.wikipedia.org/wiki/Animal_Welfare_Act_1999) and the Animal Welfare (Companion Cats) Code of Welfare 2007[[20]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-20) governs the welfare of cats. For [biosecurity](https://en.wikipedia.org/wiki/Biosecurity_in_New_Zealand) reasons cats must undergo tests and treatment before being imported into New Zealand and in some cases direct importation is not permitted.[[21]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-21) The Animal Welfare Act deems it to be illegal to abandon an unwanted cat.

## Organisations[[edit](https://en.wikipedia.org/w/index.php?title=Cats_in_New_Zealand&action=edit&section=5)]

There are numerous cat welfare and cat breeding organisations in New Zealand. The [Royal New Zealand Society for the Prevention of Cruelty to Animals](https://en.wikipedia.org/wiki/Royal_New_Zealand_Society_for_the_Prevention_of_Cruelty_to_Animals) was formed in 1882 and now has 47 branches around the country. Cats Unloved is a Christchurch-based organisation working with cats. In 2011 the organisation was criticised for euthanasing cats with chloroform, although it is done legally and is considered to be necessary to address the problem of stray cats, seen as a large problem in the city. The [animal euthanasia](https://en.wikipedia.org/wiki/Animal_euthanasia) is done on wild and diseased cats and those which were not house trained.[[22]](https://en.wikipedia.org/wiki/Cats_in_New_Zealand#cite_note-22) There are also a number of Cats Protection League groups in different parts of the country.

New Zealand Cat Fancy is a governing body for the many cat clubs around the country and CATZ Inc is a registry for New Zealand cats.

## Cats in popular culture[[edit](https://en.wikipedia.org/w/index.php?title=Cats_in_New_Zealand&action=edit&section=6)]

"Horse" is a cat in the popular [*Footrot Flats*](https://en.wikipedia.org/wiki/Footrot_Flats) cartoon. It is a large, fierce and practically invincible cat based on one that belonged to [Murray Ball](https://en.wikipedia.org/wiki/Murray_Ball), the creator of the cartoon series. Well-known internet cats from New Zealand include [Blacky the Wheelchair Cat](http://www.stuff.co.nz/stuff-nation/pets-who-rule-the-roost/8207512/Pets-who-rule-the-roost-Blacky-the-wheelchair-cat) and [Bruce the Cat](http://www.brucethecat.co.nz/).

# 2013 Mayflower oil spill

From Wikipedia, the free encyclopedia

|  |  |
| --- | --- |
| **2013 Mayflower oil spill** | |
| EPAoilspillsubdivision3.JPG | |
| **Location** | Mayflower, Arkansas |
| **Coordinates** | Show location on an interactive map[34°58′55″N 92°26′42″W](https://tools.wmflabs.org/geohack/geohack.php?pagename=2013_Mayflower_oil_spill&params=34_58_55_N_92_26_42_W_)[Coordinates](https://en.wikipedia.org/wiki/Geographic_coordinate_system): Show location on an interactive map[34°58′55″N 92°26′42″W](https://tools.wmflabs.org/geohack/geohack.php?pagename=2013_Mayflower_oil_spill&params=34_58_55_N_92_26_42_W_) |
| **Date** | March 29, 2013 |
| **Cause** | |
| **Cause** | Pipeline rupture |
| **Operator** | [ExxonMobil](https://en.wikipedia.org/wiki/ExxonMobil) |
| **Spill characteristics** | |
| **Volume** | 3,190 bbl (134,000 US gal; 507 m3) |

The **2013 Mayflower oil spill** occurred on March 29, 2013, when the [Pegasus Pipeline](https://en.wikipedia.org/w/index.php?title=Pegasus_Pipeline&action=edit&redlink=1), owned by [ExxonMobil](https://en.wikipedia.org/wiki/ExxonMobil) and carrying [Canadian Wabasca](https://en.wikipedia.org/wiki/Wabasca_oil_field) [heavy crude](https://en.wikipedia.org/wiki/Heavy_crude_oil)[[*dubious*](https://en.wikipedia.org/wiki/Wikipedia:Accuracy_dispute#Disputed_statement) *–* [*discuss*](https://en.wikipedia.org/wiki/Talk:2013_Mayflower_oil_spill#Factual_Dispute_Tag_.2F_Propose_Renaming_to_.22Mayflower_Dilbit_Spill.22)] from the [Athabasca oil sands](https://en.wikipedia.org/wiki/Athabasca_oil_sands), ruptured in [Mayflower, Arkansas](https://en.wikipedia.org/wiki/Mayflower,_Arkansas), about 25 miles (40 km) northwest of [Little Rock](https://en.wikipedia.org/wiki/Little_Rock,_Arkansas) releasing about 3,190 barrels (134,000 US gal; 507 m3) of oil.[[1]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-reuters120815-1) Approximately 12,000 barrels (500,000 US gal; 1,900 m3) of [oil](https://en.wikipedia.org/wiki/Petroleum) and water mix was recovered. Twenty-two homes were evacuated.[[2]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-ReutersM31-2)The [United States Environmental Protection Agency](https://en.wikipedia.org/wiki/United_States_Environmental_Protection_Agency) (EPA) classified the leak as a *major spill*.[[3]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-3)

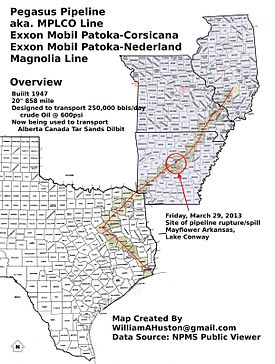
Exxon's Pegasus pipeline carries 95,000 barrels per day (15,100 m3/d) of crude a distance of 850 miles (1,368 km) from [Patoka, Illinois](https://en.wikipedia.org/wiki/Patoka,_Illinois) to [Nederland, Texas](https://en.wikipedia.org/wiki/Nederland,_Texas). The pipeline is 20 inches (510 mm) in diameter and is buried an average of 24 inches (61 cm) below ground.[[4]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-4) On April 2, 2013, [PHMSA](https://en.wikipedia.org/wiki/Pipeline_and_Hazardous_Materials_Safety_Administration), the federal pipeline regulator, issued a corrective action order until repairs have been completed and all safety concerns addressed.[[5]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-HuffingtonA02-5)

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* [2Substance spilled](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#Substance_spilled)
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## Pegasus Pipeline[[edit](https://en.wikipedia.org/w/index.php?title=2013_Mayflower_oil_spill&action=edit&section=1)]



Pegasus Pipeline

The Pegasus Pipeline, (a/k/a, EMPCO Pipeline, and the Magnolia Pipeline) is 858 miles (1,381 km), and runs from Patoka IL to the Texas Gulf Coast. It was built in two segments between 1947-1954 as an oil pipeline, which shipped products from Corsicana Texas, both north for industrial uses, and south to Gulf Coast refineries. [[6]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-6)

The flow of the southern section was reversed in 1995, and again in 2002. The northern section was abandoned in 2002, before being re-commissioned in 2005-2006 and reversed to carry diluted bitumen from Alberta Tar Sands to refiners in Texas.[[7]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-7)

The pipeline sheet metal was manufactured by Youngstown Sheet & Tube Co, using a manufacturing process called LF-ERW (Low-Frequency Electric Resistance Welds). This process has been known to have latent defects which eventually leads to failures. [Pipeline and Hazardous Materials Safety Administration](https://en.wikipedia.org/wiki/Pipeline_and_Hazardous_Materials_Safety_Administration) issued advisory bulletins in 1988 and 1989 to alert operators of factors contributing to failures of pipelines constructed with ERW pipe.[[8]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-8)

## Substance spilled[[edit](https://en.wikipedia.org/w/index.php?title=2013_Mayflower_oil_spill&action=edit&section=2)]

There has been some controversy over the exact nature of the substance spilled in Mayflower. On April 5, the Environmental Protection Agency sent a request for more information about Wabasca Heavy—the oil that spilled on the Pegasus line on March 29. The EPA's question was: "Can the oil accurately be described as oil sands oil, or a type of diluted bitumen ([dilbit](https://en.wikipedia.org/wiki/Dilbit))?" In his response on April 10, Richard Byrne, Exxon's assistant chief attorney of environmental and safety law stated: "Canadian producers report their production of Wabasca Heavy as bitumen."[[9]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-GallucciA18-9) This contradicts statements by company officials that the substance spilled was simply "heavy oil," not oil sands bitumen. However, the Material Safety Data Sheet for the product confirms that the Wabasca Heavy is bitumen mixed with [hydrocarbon](https://en.wikipedia.org/wiki/Hydrocarbon)[diluents](https://en.wikipedia.org/wiki/Diluent).[[9]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-GallucciA18-9)[[10]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-10)

## Response[[edit](https://en.wikipedia.org/w/index.php?title=2013_Mayflower_oil_spill&action=edit&section=3)]



Diluted bitumen flows along suburban street



Coordination of spill response

Early images from local media showed crude oil running along a suburban street and across lawns. The pipeline was shut after the leak was discovered on March 29. Twenty-two homes were evacuated. The oil flowed into storm drains leading to nearby [Lake Conway](https://en.wikipedia.org/wiki/Lake_Conway), a fishing lake. First responders, including fire fighters, city employees, county road crews and police built dikes to block culverts and stop the crude from fouling the lake. ExxonMobil deployed 3,600 feet (1,100 m) of [containment boom](https://en.wikipedia.org/wiki/Boom_(containment)) around the lake. ExxonMobil said that by early morning on March 30 there was no more oil spilling from the pipeline and trucks were there to assist with the cleanup. Residents of the homes evacuated were allowed to temporarily return to their homes escorted by police to retrieve personal items. ExxonMobil set up a claims hotline for affected residents. Officials from the EPA and the [Pipeline and Hazardous Materials Safety Administration](https://en.wikipedia.org/wiki/Pipeline_and_Hazardous_Materials_Safety_Administration) (PHMSA) initiated an investigation of the spill.[[2]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-ReutersM31-2)

There have been varying estimates of how much crude spilled. Initially ExxonMobil did not state an exact amount. On March 30, the company reported that 4,500 barrels (190,000 US gal; 720 m3) of oil and water mix had been recovered. The following day the company said 12,000 barrels (500,000 US gal; 1,900 m3) of oil and water had been recovered. The company was unable to estimate how much of the total was oil and how much water.[[2]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-ReutersM31-2) On April 10, [UPI](https://en.wikipedia.org/wiki/United_Press_International) reported that around 5,000 barrels (210,000 US gal; 790 m3) of oil were spilled but quoted Exxon as saying that the final volume would not be known until after the pipeline was repaired and refilled.[[11]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-UPIA10-11) Before determination of the penalties for the violations of federal and state environmental laws, the estimated amount was corrected to 3,190 barrels (134,000 US gal; 507 m3).[[12]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-cns230415-12)

On April 1, 2013, the [Federal Aviation Administration](https://en.wikipedia.org/wiki/Federal_Aviation_Administration) announced it was [closing the airspace](https://en.wikipedia.org/wiki/Prohibited_airspace) from the ground to 1,000 feet (300 m) over the disaster area; the restriction spanned a 5-mile (8.0 km) radius.[[13]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-13) The [*Arkansas Democrat-Gazette*](https://en.wikipedia.org/wiki/Arkansas_Democrat-Gazette) reported that the FAA's restriction stated "only relief aircraft operations under direction of Tom Suhrhoff" were permitted to enter the designated airspace. Surhrhoff was identified as an "aviation advisor" to ExxonMobil.[[14]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-14) Accusations have been made that this is part of an effort by Exxon to [cover-up](https://en.wikipedia.org/wiki/Cover-up) the true damage of the spill from journalists.[[15]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-15)[[16]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-16) On April 3 the FAA changed the restriction level to allow media access stating the media should not have been restricted from this type of incident, also claiming FAA was responsible for the error.[[17]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-17) The flight restrictions over Mayflower were cancelled on April 5.[[18]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-18)[[19]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-19)

On April 2, PHMSA issued a corrective action order to ExxonMobil Pipeline Co. preventing ExxonMobil from restarting operations on the affected segment of the pipeline until it is satisfied with repairs and all safety concerns have been addressed. According to the order: "continued operation of the Pegasus Pipeline would be hazardous to life, property, and the environment." Arkansas' Attorney General [Dustin McDaniel](https://en.wikipedia.org/wiki/Dustin_McDaniel) promised a state investigation into the cause and impact of the spill. In a letter to ExxonMobil McDaniel stated: "There are many questions and concerns remaining as to the long-term impacts, environmental or otherwise, from this spill," He asked ExxonMobil to preserve records pending his investigation.[[5]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-HuffingtonA02-5)

For several days after the spill, local residents complained about the "horrible smell" of the [diluted bitumen](https://en.wikipedia.org/wiki/Dilbit).[[20]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-20) [Air quality monitoring](https://en.wikipedia.org/wiki/Air_pollution) has been conducted by the EPA and ExxonMobil and posted online by the Arkansas Department of Environmental Quality. According to [Fox 16 News](https://en.wikipedia.org/wiki/KLRT-TV), the air quality readings have been reviewed by the Arkansas Department of Health and are below levels that will cause health effects for the general population except in cleanup areas where emergency responders are working.[[21]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-21)

On April 10, Attorney General McDaniel hired disaster management firm Witt O'Brien's to analyze the cleanup process.[[22]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-Hays01-22)

## Effects[[edit](https://en.wikipedia.org/w/index.php?title=2013_Mayflower_oil_spill&action=edit&section=4)]

*See also: Interactive map in* [*External links*](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#External_links) *section, below.*



Diluted bitumen flows into creek



Diluted bitumen flows into wetlands east of I-40 *by On Wings of Care*



Boom placed around marshes and into Lake Conway *On Wings of Care*

Members of the community have been engaged in gathering and spreading information about what happened due to the lack of media coverage about the event.

### **Water**[[edit](https://en.wikipedia.org/w/index.php?title=2013_Mayflower_oil_spill&action=edit&section=5)]

Since the spill on March 29, there have been conflicting reports as to whether the oil sands oil has reached [Lake Conway](https://en.wikipedia.org/wiki/Lake_Conway). Official reports have indicated that there is no oil in Lake Conway, but an independent study claims to have samples showing oil in the [water column](https://en.wikipedia.org/wiki/Water_column). Scott Smith of Opflex, an oil clean-up company, states that official samples are of surface water only: “Exxon and the EPA are taking instantaneous water samples, grab samples from the surface. Obviously if the contaminants in oil sands oil, and chemicals, are in the water column beneath the surface you’re not going to get any of those molecules to test.” Keith Stephens of Arkansas Game and Fish has countered these findings, pointing out that there have been no dead fish or other wildlife that would indicate that there is oil in the main body of the lake.[[23]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-23)

### **Air quality**[[edit](https://en.wikipedia.org/w/index.php?title=2013_Mayflower_oil_spill&action=edit&section=6)]

While initial reports of air quality by the Arkansas Department of Health did not reveal levels that were of concern for health effects, monitoring by a citizens group has revealed significant readings of toxic chemicals. According to a representative of the Sierra Club: "Total toxic hydrocarbons were detected at more than 88,000 parts per billion in the ambient air."[[24]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-UPIA30-24) Exxon reported detecting benzene and other harmful chemicals in early sampling at Mayflower but said air and water quality was within safe limits. However, the report, released by the Faulkner Citizens Advisory Group, said residents were still showing symptoms of exposure to harmful chemicals, including [benzene](https://en.wikipedia.org/wiki/Benzene) and [toluene](https://en.wikipedia.org/wiki/Toluene), more than four weeks after the spill.[[24]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-UPIA30-24)

## Relationship to Keystone XL[[edit](https://en.wikipedia.org/w/index.php?title=2013_Mayflower_oil_spill&action=edit&section=7)]

One of the issues highlighted in national news coverage is the relationship to the [Keystone XL Pipeline](https://en.wikipedia.org/wiki/Keystone_XL_Pipeline) that has been proposed to carry oil from [Canada's oil sands](https://en.wikipedia.org/wiki/Athabasca_oil_sands) to refineries on the [US Gulf Coast](https://en.wikipedia.org/wiki/Gulf_Coast_of_the_United_States). An article in the *National Geographic News* states: "Now, the broken conduit is at the center of a national debate—the plan to transport much larger volumes of heavy oil from the Canadian oil sands through the United States, through both older pipelines like Pegasus and new ones like the proposed Keystone XL."[[25]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-NGA04-25) A *Reuters* article quotes Representative [Ed Markey](https://en.wikipedia.org/wiki/Ed_Markey), a Massachusetts Democrat as saying: "Whether it's the proposed Keystone XL pipeline, or ... (the) mess in Arkansas, Americans are realizing that transporting large amounts of this corrosive and polluting fuel is a bad deal for American taxpayers and for our environment." The article notes that a report from the [Canadian Energy Pipeline Association](https://en.wikipedia.org/w/index.php?title=Canadian_Energy_Pipeline_Association&action=edit&redlink=1), put together by oil and gas consultancy Penspen, argues that "diluted bitumen is no more corrosive than other heavy crude."[[2]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-ReutersM31-2) This latter claim has not been verified by independent peer-reviewed research and is the subject of a current study by the National Academy of Sciences.[[26]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-26)

## Investigative journalism[[edit](https://en.wikipedia.org/w/index.php?title=2013_Mayflower_oil_spill&action=edit&section=8)]

On July 22, 2013, [*InsideClimate News*](https://en.wikipedia.org/wiki/InsideClimate_News) and the [*Arkansas Times*](https://en.wikipedia.org/wiki/Arkansas_Times) announced that a [crowdfunding](https://en.wikipedia.org/wiki/Crowdfunding) initiative had amassed over $25,000 to fund two reporters to investigate the causes and consequences of the spill. *Inside Climate News* noted that ExxonMobil had not yet explained the cause of the 22-foot-long (7 m) gash in the pipeline, nor stated how much oil had been spilled. The oil company has maintained that the results of an inspection it conducted of the pipeline are not available to the public. The *Inside Climate News* article stated: "That leaves two critical questions unanswered: Did Exxon manage and test its broken Pegasus pipeline according to established guidelines? And, if it did, is the Arkansas accident a warning that other pipelines might be at risk?"[[27]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-ICN-J22-27)

The two reporters chosen for this assignment are Elizabeth McGowan and Sam Elfing. McGowan was part of the InsideClimate News team that won the 2013 [Pulitzer Prize for National Reporting](https://en.wikipedia.org/wiki/Pulitzer_Prize_for_National_Reporting) for its coverage of the 2010 [Kalamazoo River oil spill](https://en.wikipedia.org/wiki/Kalamazoo_River_oil_spill). Eifling is an Arkansas native who has written for a variety of publications, including [Slate](https://en.wikipedia.org/wiki/Slate_(magazine)) and the [Columbia Journalism Review](https://en.wikipedia.org/wiki/Columbia_Journalism_Review).[[27]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-ICN-J22-27)

## Legal action[[edit](https://en.wikipedia.org/w/index.php?title=2013_Mayflower_oil_spill&action=edit&section=9)]



Damage to house

Residents of Mayflower are seeking payment from ExxonMobil for the environmental damage caused by the spill. By initiating action, they've forced the state and federal governments to file a lawsuit against the company. According to Arkansas Attorney General Dustin McDaniel, the lawsuit came quickly—within three months after the spill—but he said that the governments were forced to act. Citizens may file suits in lieu of the government, if the government won't act. A threatened lawsuit from displaced residents forced the state and federal government to file suit, or lose the opportunity. "We had 60 days to either resolve our claims or be masters of our own ship and, certainly, I think that the [Department of Justice](https://en.wikipedia.org/wiki/United_States_Department_of_Justice) and the [State Attorney General’s office](https://en.wikipedia.org/wiki/Arkansas_Attorney_General) have a responsibility to litigate on behalf of the governments of the state and the federal government rather than abdicating that to private lawyers," McDaniel said. Commenting about ExxonMobil, McDaneil added: "I think that they have done a really good job with response and cleanup, but then they break the law when they store the stuff that they removed from the site." The company had stored materials, including soil, water, concrete and wood chips, in large barrels at a company-owned site nearby. Arkansas officials had not granted permission to store hazardous material and have ordered the company to stop immediately.[[28]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-28)

According to [Fox 16 News](https://en.wikipedia.org/wiki/KLRT-TV), local residents banded together on April 5, 2013 and April 8, 2013 at a "Mayflower Oil Spill Town Meeting hosted by Johnson & Vines Attorneys" to discuss their legal rights.[[29]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-29) Since that time, in addition to the State action file by the Attorney General, a mass action has been filed by two law firms in Arkansas state court in Faulkner County, Arkansas: Johnson & Vines[[30]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-30) (member of the American Injury Attorney Group)[[31]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-31) and partnering firm, Hare, Wynn, Newell & Newton.[[32]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-32)

In 2015, ExxonMobil settled charges that it violated the federal Clean Water Act and state environmental laws, for $5.07 million, including $4.19 million in civil penalties. It did not admit liability.[[1]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-reuters120815-1)

## Findings[[edit](https://en.wikipedia.org/w/index.php?title=2013_Mayflower_oil_spill&action=edit&section=10)]

Several problems with the pipe seam were identified as the cause of the failure. Hook cracks, extremely low impact toughness, and elongation properties were named for the pipe tested. The [low-frequency electric resistance weld](https://en.wikipedia.org/wiki/Low-frequency_electric_resistance_weld) ([ERW](https://en.wikipedia.org/wiki/Electric_resistance_welding)) pipe manufacturing process, used to make this pipe, has been known to have weaknesses with hook cracks and hardness issues.[[33]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-33)[[34]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-34)[[35]](https://en.wikipedia.org/wiki/2013_Mayflower_oil_spill#cite_note-35)