

The Exxon Valdez Spill Is All Around Us

By Brandon Keim [✉](#) March 24, 2009 | 10:47 am | Categories: [Environment](#), [Government](#)



The final legacy of the Exxon Valdez oil spill is not a pristine ecosystem's defilement, or the destruction of millions of animals. It's the accumulation of scientific knowledge about oil in our environment.

Contrary to the conventional wisdom of 1989, oil isn't just a problem in the immediate aftermath of a spill, when coastlines and [wildlife](#) are covered in a hideous, highly photogenic slick. It wreaks a subtle, long-term havoc, as toxic chemicals enter ecological cycles and take decades to break down. That's not only true in Prince William Sound, but around the United States, where millions of gallons of oil spill every single year.

"Most of the oil that runs off roads and parking lots doesn't go into sewage treatment plants," said [Mary Kelly](#), co-director of the Environmental Defense Fund's land, water and wildlife program. "It just runs off into waterways."

When [the Exxon Valdez ran ashore off Prince William Sound on March 24, 1989](#), it wasn't the first tanker to founder at sea. It was, however, the first tanker to deposit its load — 11 million gallons of crude oil, eventually covering 11,000 square miles of ocean — in such an economically and environmentally important ecosystem, and thus squarely in the public eye.

To this day, images of oil-choked birds and oil-fouled shorelines are burned into the memories of a generation. Local and national outrage forced Exxon into paying billions of dollars to clean the mess. Some of this money went to scientists who monitored the region's recovery. For the first time, researchers had the resources necessary to thoroughly study an oil spill's effects. These proved even uglier than they first appeared.

Researchers expected the oil to break up in a few years. Instead, it will take more than a century. They found that oil's compounds, especially polycyclic aromatic hydrocarbons — carcinogenic molecules that attach to fat, and

refuse to break down in water — are toxic at levels hundreds, even thousands of times [lower than was previously believed](#).



The Valdez pollution set off a cascade of environmental effects that have yet to be fully understood, but have at least been measured. Few of the region's fish, bird and marine mammal populations have recovered. To the naked eye, Prince William Sound is beautiful and wild — but beneath the surface, it is profoundly damaged. As the Exxon Valdez Oil Spill Trustee Council [recently reported](#), oil in many areas "is nearly as toxic as it was the first few weeks after the spill."

And if those consequences seem remote, limited to a distant corner of North America, then consider this: [According to the National Marine Fisheries Service](#), six Exxon Valdez spills' worth of oil seep into the U.S. environment every single year, dripping from vehicles and washed into sewers where it's carried directly into streams and finally to the sea.

"That's what you get in urbanized and urbanizing estuaries. Each rainfall brings the next batch of spilled oil and grease," said [Charles Peterson](#), a University of North Carolina marine ecologist who has studied the effects of the Exxon Valdez spill for two decades. "It fits the long-term exposure criteria which we've shown were so devastating in Prince William Sound."

Oil enters the environment through what's known as non-point sources. There's no obvious villain, like a breached oil tanker or belching smokestack. Instead there are millions of cars trailing oil roads, and weekend mechanics pouring cans into curbside drains.

Rain gathers the oil and takes it into sewers. Sometimes sewage pipes flow directly into rivers, streams and bays. Sometimes they join domestic waste pipes and flow into a water treatment plant. But even then, oil can literally fall through the cracks before it arrives. "We have a situation where many municipalities put in their systems using wood pipes and cast iron pipes, and those are failing," said [Benjamin Gann](#), government relations coordinator at the National Utilities Contractors Association.

That result, estimates NUCA, is about 2.5 billion gallons of sewage spills every year — a daunting number, and one that pales in comparison to the 950 billion gallons of untreated sewage spewed by directly-polluting pipes and so-called [combined sewer overflows](#). During the latter, rainfall runoff surges so powerfully that waste processing

plants can't handle it, and dump waste without treatment.

In its annual evaluation of U.S. infrastructure, the American Society of Civil Engineers gave the nation's wastewater system a [D-minus grade](#) — far worse than the country's bridges, which after the 2007 [Minneapolis bridge collapse](#) were nationally recognized as a disaster.

Government efforts to control non-point source pollution — inspired in part, said Peterson, by Exxon Valdez-prompted research on oil toxicity — are well-meaning, but the jury's out on their effectiveness. The Environmental Protection Agency in 2003 added storm overflow guidelines to their [suite of water pollution regulations](#), but Peterson said it's too soon to know their effectiveness. Others are less optimistic.

"The storm-water regulations have little teeth to them at all," said [Katherine Baer](#), senior director of the clean water program at American Rivers, a nonprofit environmental group. "Municipalities have to implement a plan, which includes monitoring, but in terms of controlling the sources of pollution, we've had almost no advance."

The federal economic stimulus package passed in January contains roughly \$4 billion for clean water, of which \$1.2 billion is earmarked for "green infrastructure" — green roofs, porous concretes, and other technologies that can at least reduce the surges that cause sewage plants to overflow.

It's a welcome investment, said Baer, but the EPA estimates that \$390 billion is needed to upgrade water systems nationwide, and Gann called the stimulus figure "a down payment" on what's needed. Moreover, said Baer, "Global warming is going to be one more added stress on our infrastructure. Storms will be more intense, and you're going to see more intense runoffs and overflows."

The effects of all this oil have yet to be quantified. Unlike Prince William Sound, researchers haven't spent decades looking for damage caused by chronic oil exposures in America's waters. It's not inconceivable that a state of permanent toxicity has come to seem natural.

If oil "kills all these organisms through long-term exposures in Prince William Sound," said Peterson, "think what it's doing in Boston Harbor and San Pedro and every other place where this is going on."

Images: 1. Flickr/[Jim Brickett](#) 2. Flickr/[Daquella Manera](#)

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