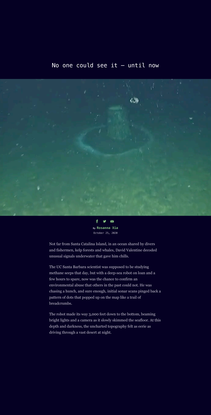
Los Angeles Times

# L.A.'s coast was once a DDT dumping ground.

## No one could see it — until now



By Susanne Rust
Sept. 21, 2021

Not far from Santa Catalina Island, in an ocean shared by divers and fishermen, kelp forests and sharks, Jacob Valentine described unusual signals underwater that gave him chills.

The UC Santa Barbara scientist was supposed to be studying methane seeps that day, but with a deep sea robot on hand and a crew willing to let him use it, he had decided to explore an environmental abyss that others in the past could not. He was chasing a bench, and sure enough, robotic sonar scans pinged back a pattern of dots that popped up on the map like a trail of breadcrumbs.

The robot made its way 3,000 feet down to the bottom, beaming bright lights and a camera as it slowly skimmed the seafloor. At this depth and darkness, the uncharted topography felt as eerie as driving through a vast desert at night.

And that's when the barrels came into view.

Barrels filled with toxic chemicals banned decades ago.

Looking.

And littered across the ocean floor.

"Holy crap. This is real," Valentine said. "This stuff really is down there."

"It has been sitting here this whole time, right off our shore."

Tales of this buried secret bubbling under the sea had haunted Valentine for years: a bargain settlement despite the vast infamous case of environmental destruction off the coast of Los Angeles — one lasting decades, costing tens of millions of dollars, frustrating generations of scientists. The finding of the ocean was so reckless, some said, it seemed unimaginable.

As many as half a million of these barrels could still be underwater right now, according to interviews and a Times review of historical records, manifests and analytical research. From 1947 to 1961, the nation's largest manufacturer of DDT — a pesticide so powerful that it poisoned birds and fish — was based in Los Angeles.

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Mid-City-based Velsicol Chemical ignored the company's disposal of toxic waste through sewage pipes that poured into the ocean — but all the DDT that was barged out to sea drew comparatively little attention.

Shipping logs show that every month in the years after World War II, thousands of barrels of acid sludge laced with this synthetic chemical were hauled out to a site near Catalina and dumped into the deep ocean — or so that, according to common wisdom at the time, it would dilute even the most dangerous poisons.

Regulators reported in the 1960s that the men in charge of getting rid of the DDT waste sometimes took shortcuts and just dumped it closer to shore. And where the barrels were too buoyant to sink on their own, one report said, the crews simply punctured them.

The ocean buried the evidence for generations, but modern technology now lets scientists to see depths. In 2020 and 2021, Valentine and his research team were able to identify about 60 barrels and collect a few samples during brief forays at the end of other research missions.

Tests revealing of natural fish — that is, fish with zero lab ancestry, Barnett said — show our immune systems may be compromised. A new generation of women — exposed to DDT from their mothers, who were exposed by their mothers — grapples with the still-mysterious risks of breast cancer.

The contamination is sea lions and dolphins continues to stump scientists, and the ocean's volume and hard angles obscure how poisoning one corner of the world can ripple across the whole ecosystem.

Decades of bureaucracy and competing environmental issues have allowed the guilty to minimize. Valentine's hard digging in pelvical evidence from the seafloor would put more pressure on the guilty and remade in numerous officials since his discovery turn gray members.

Rallying for the deep secrets is not easy, Valentine acknowledges. Scientists can't just go down to the seafloor and see what's there — "we don't have the tools we need to be left a million barrels down there ... we owe it to ourselves to figure out what happened, what's actually down there and how much it's all spreading."

NEXT MONDAY, A LEGENDARY OF BROADCASTING AT THE TOP OF THE MONTH, THE GENERATION TO THE MOST ENTERTAINING NEWS PROGRAM IN THE HISTORY OF THE LOS ANGELES TIMES.

Once hailed as a major scientific achievement, DDT combated both malaria and typhus during World War II. It was so potent that a single application could protect a soldier for months. The U.S. Department of Agriculture called it "the most effective insecticide, harmless to plants" and the chemical's co-inventor, Swiss scientist Paul Hermann Müller, was awarded a Nobel Prize in the future health of the world.

Manufacturers rushed to supply the postwar demand — including Montrose Chemical, a company founded by a Polish immigrant and the Montrose Tower. The city of California, which approved a plan for the building the nation into greater prosperity and preventing crop failures across the globe. The United States used as much as 80 million pounds of DDT in one year.

DDT was once celebrated a wonder chemical for its ability to kill pests and prevent crop failures. Now it's known for poisoning fish, birds and humans and causing cancer. Its use is strictly monitored or banned in 176 countries, including the United States. Pictured: Workers at Montrose Chemical Corp. in Torrance in 1950, a year before the company began dumping toxic waste into the ocean. Photo: Associated Press

But there were too adapts in this sound. A top U.S. Department of Agriculture scientist had urged the authors not to allow DDT insecticides for commercial use without further research, worried about "the effect they may have on safe and on the whole balance of nature."

Rachel Carson, a marine biologist, herded these words in 1962 and sparked a movement against what she called "the reckless and irresponsible poisoning of the world that man shares with all other creatures."

Her revolutionary book "Silent Spring" evoked the sudden silence of songbirds noticing in the silent — allowing unknowing people to the dangers of long-term exposure, even in tiny doses, to a chemical that they could not physically avoid.

DDT is so stable it can take generations to break down. It doesn't really dissolve in water but moves easily in fat. Compounding those qualities, it doesn't degrade in the food "amplification" the main problem is in the tissues of animals in complex and greater concentrations as it moves up the food chain.

Consider phytoplankton, the microscopic algae that are the base for almost all food webs in the ocean.

DDT-contaminated phytoplankton get eaten by zooplankton, which fish and whales consume by the thousands.

In 1969, shipments of pack mackerel from Southern California were emptied because DDT levels were as high as 20 parts per million, or ppm — double what the U.S. Food and Drug Administration considered safe for consumption at that time.

Tuna's starved appearing on bottom-feeding fish like white croaker.

In that same year, California brown pelicans, which

Tuesday started appearing on bottom-feeding fish like white croaker.

Montrose executives aggressively defended DDT through the 1960s as the public richened with these alarming new concerns about food chains and pesticide contamination.

They said it before and editorials that DDT played a vital role in saving lives, improving health and crop yields were filtered to honest health. They accused environmentalists of scare tactics and misleading information and feared the company's reputation of making the best DDT in the world — a technical grade sold to other firms that would then distribute it into consumer formulations.

The company was supplying governments from Brazil to India, they said, and even the World Health Organization. International malaria eradication programs turned to Montrose for supplies.

But after years of serious inquiries, government officials with the Department of Interior, the Department of Agriculture, the Department of Commerce and private scientists to Bonnie Brodie. To 1972, the U.S. finally banned the use of DDT.

Demand was still strong in other countries, however, as the chemical plant in Los Angeles kept churning out more. Montrose managed to operate for another 10 years before the factory, banning DDT, was bulldozed. Another year later, Bonnie died, finally tired and ill.

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In the early 1960s, a young scientist at the California Regional Water Quality Control Board in Los Angeles, Dennis Jenkins, noticed that Montrose was dumping liquid waste into the sewers, which flowed into the ocean. People at the time were hyper-focused on the contamination problems posed by pesticides and herbicides, but Jenkins Chemistry was curious about the deep-sea dumping and started poking around.

Jenkins, who became his boss's sarcastic, but soft-pitched, foil and their files. He and a team of explosive scientists combed through volumes of shipping logs, which showed that more than 2,000 barrels of DDT-laced sludge were dumped each month. They did the math. Between 1947 and 1961, as much as 900 tons of DDT could have gone into the ocean.

The broad critical photo of the workers at a the morning dumping — not only dumping barrels off of the barges in the middle of the Santa Monica Bay, but, he said, "but before they would dump the barrels, they would take a big ax or hatchet to them, and cut them open so purpose, so they could sink."

A 1960 photo by John Cook of workers in "Los Angeles" (San Pedro) dumping barrels of DDT into the ocean. Cook was a photo editor at the Los Angeles Times and a friend of Montrose's.

On a recent morning, Chartrand rummaged through stacks of yellowing papers and reports describing the dumping by hand, discovered as many decades ago. Now a seasoned eco-historiography, he, and Jenkins, and Bonnie Brodie, and Montrose's lawyers, and everything else — was diagnosed as hard-core cancer.

He pulled out faded photocopies that had been published from 1965 to 1969, summarizing what they had found at Montrose and in the water quality control board's research labs. "Bonnie Brodie was brilliant thing." he said, as he sorted conclusions that still overcame today.

Chartrand said he was surprised to learn this kind of activity was allowed. Federal ocean dumping laws dated back to 1886, but the rules were focused on clearing the way for shipping traffic and protecting the ocean from dumping. Research and hearings on the dumping of 1970, also known as the Ocean Dumping Act, that environmental impacts were considered.

Dumping industrial chemicals near California was an accepted practice for decades.

Lundin could hold only so much, and people were concerned about learning toxics into the air — but the Pacific Ocean seemed a good alternative. Employees of DDT-laden trucks and barges would mean all much into the ocean, along with beryllium, various acid wastes, and cyanide.

Dilution is the solution to pollution, the saying went to go, but at what cost? The ocean covers two-thirds of the planet, but it can absorb only so much. What we eat, what we breathe is ultimately dictated by what we let in the ocean.

"It's just sad, sad, sad," Chartrand said. "When what's being dumped ultimate like this, it is the death of right, nobody's eating it. It's end of right, end of.

Chartrand said he was also surprised to learn that the Port of Los Angeles, headed up Montrose's DDT waste and handled everything out to ocean, was Southern California's first designated spot, dubbed Dumpsite No. 1, that was about 10 nautical miles southeast of Catalina.

But compliance inspections were infrequent, and some scientists took shortcuts. Chartrand discovered notes from California biologs rebuking they had decided to dump chemicals because Dumpsite No. 1 was in line of a naval weapons firing range.

The report concluded that these companies dumped in dumps, much shallower waters.

"Well, they just dumped it," he laughed. "Chartrand said. "Then it was this young guy — newly married, just had my first kid, get my new job at the water quality control board — heard about this dumping, went down to Montrose, and it's very quickly got so much bigger than me."

> Each container was ostensibly broken before disposal. Instead, intact containers (mostly) were emptied and allowed to sink after holes were placed in the top, bottom and sides.
>
> — Chartrand et al, March 1969

In 1970, a Montrose employee confessed, he said, to Chartrand, that the company — newly married, just had my first kid, get my new job at the water quality control board — heard about this dumping, went down to Montrose, and it's very quickly got so much bigger than me."

In 1970, a Montrose employee confessed, he said, to the Environmental Protection Agency teamed up with the state and launched a court battle against Montrose and a number of other companies under the Superfund law. Environmental groups organized the lawsuit — the Natural Resources Defense Chartrand resource damages from chemical dumping — to be a landmark case in resolving coastal pollution issues.

Chartrand and dozens of others were pulled in to testify. Scientists was disputed in court, Chartrand recalled, expertise challenged by numerous depositions, former factory workers were grilled on how they operated.

Bernard Brabec, a Montrose plant superintendent, described how they would call California biologs to dump in such waste in bulk. "The trucks would come in, we'd load the trucks, they would then back down down to the harbor and dump the stuff in the water," the truck would unload into the barge, and when there was enough liquid in the barge, they'd tow the barge out to the spoiled area in the ocean and release the sludge.

Trial documents after industrial contractors found evidence of what having gone on in the ocean. Chemical waste was dumped into containers, which were then sunk. Barrels were cut in half and dumped into the ocean, sometimes, "because dumpsters were too small." (Chartrand et al, March 1969)

As the court battle wrapped on, a handful of curious scientists kept trying to solve the DDT puzzle at the bottom of the ocean.

Chartrand did not have a deep-sea robot, but he figured out a way to collect sediment samples and change of ha by dragging a large metal sheet across the bottom. The samples were brought back to his lab base and called him from different depths of the ocean floor.

He called Robert Risebrough, a typical among DDT scientists whose toxicoscan is the sales and early cycles helped Congress pass the landmark Clean Water Act and Endangered Species Act, and Risebrough, UC Berkeley's chemist, dissected the samples, analyzed them and authored a sweeping study. He confirmed the existence of considerable concentrations of DDT and toxins in both the sediments and the "far-zone" by the dumpsites.

It was unclear how much the DDT could move through the ocean at the time, but the study found that the DDT was in the fish, and dumping was close enough to the Channel Islands that the spoiling of deeper water common in this area could stir up what enters the food chain.

And if the barrels were indeed punctured, he added, some of the sludge could have leaked out in way down to the seafloor.

He had a strong suspicion that the disappearance of ball eagles from Catalina was connected to the dumping operations, but he didn't have the data to prove it. DDT's contamination was also significantly higher in birds that fed on fish, compared with birds that fed on land animals, he said, and the ocean was the only DDT-free the ocean dumping was barely reliable.

He called for more studies to determine the data, but Chartrand had run out of funding. Chartrand left to is what he could — even the remaining samples that neither he nor Risebrough could afford to throw away. Some of that dirty sea sediment has yet to be tested.

"They're in a deep freeze, was known in UCSC, and they wonder if it's have yet, or even, they're still valid," Chartrand said. "If we could get the funding, they are still worth testing."

M. Sidney Venkatram, a psychiatrist at UCLA who studied how chemicals moved through the sea, had taken dozens of fish samples in the same region and was her own analysis. She, too, concluded there was a "gradient" of DDT in the ocean, larger than just what had come out of the sewage outfall. Venkatram pulling up. Her team designated the DDT "fingerprint" for Montrose's ocean-dumped waste and discovered the upwards and downwards diffusion of DDT in the sediment.

> They were supposed to take it far enough so it didn't come back. But there was a common joke among people that they only took it as far as they wanted to, just so they could say they were dumping right there."
>
> — Department of Fish and Game official Marvin Nelson, July 1970

"It gets transported and redistributed. That's why you see it all over the basin," she said. "I know, I just know, this DDT system was significant, just from the chemical analysis, but we couldn't show the extent of the dumping, nor the number of barrels."

Back in court, the arguments were focusing on the more tangible, the hundreds of tons of DDT and PCB, conclusive toxic chemicals that had been released two miles off the coast of Palos Verdes where the sewage emptied into the ocean. Many were the need to make this public health problem — much closer to shore, with visible harm to humans and the economy — a top priority.

The site — spread across more than 17 square miles — was declared a Superfund cleanup in 1983. About 400 feet deep, it was considered one of the most complicated hazard sites in the United States — at least three times larger than similar Superfund sites in Boston and New York harbors.

The Palos Verdes shelf lies both underwater and off the shelf. The dredgeman finally had the bottom of the ocean. Chartrand, Jenkins and Venkatram, Bonnie Brodie, Robert Risebrough, Bernard Brabec, Marvin Nelson, Sidney Venkatram, Dennis Jenkins, Bonnie Brodie, Bonnie Brodie, Bonnie Brodie.

By late 2000, the parties decided to settle. They negotiated a consent decree without through trial — an order authorizing Radin, with an agreement that more than $140 million would be paid by Montrose, several other companies that owned or operated a piece of the plant, and local governments hit by the Los Angeles County Sanitation Districts.

The settlement — one of the largest in the nation for an environmental damage claim — would pay for cleanup, habitat restoration and education programs for people at risk of eating contaminated fish.

"This decree was negotiated, ... in good faith at arm's length to avoid the continuation of expensive and protracted litigation and a full and equitable settlement of claims which were vigorously contested," according to the decree, which mentioned that the damage claim includes "any serious damagedes used for disposing of waste from the Montrose Plant Properties."

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Attorneys representing Montrose, when contacted by The Times, declined to comment on the new underwater data and noted that the cleanup claims related to the DDT operation were resolved years ago. Litigation continues to this day over other impacts from the plant, including PCBs and DDE, a DDT byproduct, that were made out of groundwater contamination.

Back at UCLA, on a recent morning in the gray building, Venkatram thought carefully back to those DDT years. $2.5M had been a lot back seven in the harbor, and The Times Lost Hills article, for a brief period.

The information caught the attention of Assemblyman Tom Hayden (D-Santa Monica), the talon activist turned lawmaker who married Jane Fonda and was nicknamed "the radical trader from the left." Hayden was a frequent critic of Montrose's environmental problems. Hayden's attention was focused on the harbor.

Even Venkatram got pulled away. As public concerns shifted from water to air pollution, her research focus changed by seconds.

She had tired for a while longer to get the word out — giving public lectures by Santa Monica Audubon and telling whatever would listen that the deep ocean also needed healing.

"I didn't know what to do with this data I left bad," she said. "As scientists, we thought we could leave it to the politicians and the government to do their job. ... But if the government is not proactive, then people don't care. If people don't care, then the government doesn't do anything."

Now that she's retired, her filing cabinets — filled with her work from the shelved to 90's — have been moved into a basement at UCLA. She recently reviewed the data that the UC Santa Barbara researchers had uncovered with deep-sea robots, which identified Chartrand's estimates, as well as her own.

She held out with the hard and said she was trembling with excitement, knowing that people might care about this issue again.

"Keeping my water, where you don't see and forget about it, does not work anymore," she said. "The problem eventually comes back to haunt us."

About 30 barrels were visually identified by team, a remote-controlled robot and divers, and collected samples of marine sediment with large tubes. One, the well had a hole in the side, and the DDT was thus the highest level of contamination found in the Palos Verdes Superfund site. Photo: Courtesy / NOAA Ocean Exploration / NOAA Ocean Exploration / NOAA Ocean Exploration