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# Storms send sewage pouring into streets, creeks, San Francisco Bay and Pacific Ocean

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January’s storms are offering an unsettling glimpse into one of the Bay Area’s dirtiest environmental secrets: Heavy rain overwhelms our region’s vast plumbing system and flushes wastewater into places where it doesn’t belong.

Downpours triggered the release of millions of gallons of raw sewage mixed with rainwater across the region in just two weeks, spilling contaminated water into dozens of rivers, creeks and ultimately into the ocean and San Francisco Bay, according to [a Bay Area News Group analysis of 88 reports](#) to the state’s Office of Emergency Services.

“Flooded waters contain pathogens,” warned Eileen White, executive officer for the San Francisco Bay Regional Water Quality Control Board. “If you touch flood waters, you want to wash your hands thoroughly with soap and water to make sure that you don’t get yourself exposed.”

When sewage flows into homes and businesses, expensive remediation and decontamination is needed to make them safe again. Overflows also may have dangerous consequences for the environment, because human waste, pharmaceuticals, shampoos and other harmful products are flushed down drains and toilets.

In one incident, the Martinez Refinery Company reported releasing more than six million gallons of storm and wastewater into the Carquinez Strait estuary, which drains into the San Francisco Bay, on Jan. 4, according to state records. The discharge of partially treated “process water” and storm water was necessary to avoid damage to the refinery, the company reported.

Dozens of other smaller incidents were caused by open manhole covers, broken pipes and overwhelmed treatment facilities, from Corte Madera to Woodside and Half Moon Bay to Pleasanton.

State records show that between Dec. 31 and Jan. 3, a total of more than 14 million gallons of sewage were discharged in the San Francisco Bay region, enough to fill 21 Olympic-sized swimming pools, according to White. The Jan. 4 storm triggered the release of another 8 million gallons, or 12 Olympic-sized swimming pools.

More recent releases are still being tallied. Experts say the total volume is likely to be much larger than current estimates because the chaotic circumstances surrounding these emergency flooding situations mean it's nearly impossible to accurately evaluate the true scale and impact of sewage contamination.

Like bridges or skyscrapers designed to bear certain weights, stormwater management systems are designed within the limits of weather — and can't handle the intensity of storms that might happen only every decade or two.

In dry times, waste from homes and businesses is whisked immediately away to wastewater-treatment plants, never to be seen, smelled or considered again.

But two weeks of near-constant storms have stressed the system, as heavy rainfall and flooding infiltrate sewer pipes.

“We saw 13 times our average wastewater flows,” said Andrea Pook of East Bay Municipal Utilities District.

Most of the releases were caused when storm water backs up into the streets, flowing up through drains or manhole covers forced open by the overwhelming volume of high-pressure torrents, the reports show.

In Redwood City, a manhole overflow sent polluted water into Borel Creek at a rate of 150 gallons per minute. In San Mateo, 100 to 150 gallons per minute flowed into a storm drain that empties into Polhemus Creek. About 50 gallons a minute were dumped into Sonoma Creek. In Oakland, the overflow of three manholes spilled 25,000 gallons into Lake Merritt.

When a sewage lift station in Daly City overflowed because of stormwater, 35,950 gallons of waste were released into the Pacific Ocean. The rupture of a main treatment line in Moss Beach also caused a spill into the ocean. In Pacifica, an overflowing pump station caused 20,000 gallons to be discharged at Linda Mar Beach. About 34,000 gallons were released in Menlo Park's Belle Haven neighborhood when a West Bay Sanitary treatment plant couldn't keep up with the flow.

In Richmond, the West County Wastewater facility pumped sewage directly into the San Francisco Bay, according to a Jan. 11 report. “It is unknown how long the releasing will be going for,” it said.

Three discharges into Oakland's San Leandro Creek, Barnhill Marina and an estuary at the foot of Alice Street originated from the East Bay Municipal Utility District's “overflow structures,” which are designed to discharge water in high-flow conditions.

Farther south, a sewage treatment plant was flooded Friday when the Salinas River rushed over the banks of a levee. Percolation ponds in the city of Templeton also were flooded, sending 300,000 gallons into the river.



Cal Fire Caption Curtis Rhodes, walks past a home flooded by the Salinas River on Chualar Road near Chualar, Calif., on Thursday, Jan. 12, 2023. Like many overwhelmed treatment facilities, a sewage treatment plant in Monterey County was flooded on Friday when the Salinas River rushed over the banks of a levee. (Doug Duran/Bay Area News Group)

Mother Nature is wreaking additional chaos. In Oakland, a tree fell on the sewer line, causing 5,100 gallons of sewage to be released into Sausal Creek. In Crockett, a hillside eroded and collapsed — causing a pipe to break and release 2,700 gallons. When debris blocked a sewer conduit, about 10,000 gallons overflowed into a drain that leads to Oakland’s Lake Temescal.

Records show that a single day — Dec. 31, New Year’s Eve — was responsible for the largest number of reports to the California Governor’s Office of Emergency Services, with 51 discharges in different Bay Area cities.

On that morning alone, there were 15 sewage discharges in 12 cities: Hillsborough, Woodside, San Bruno, Daly City, Pacifica, Burlingame, Half Moon Bay, San Lorenzo, Richmond, Piedmont, Oakland and Daly City. By midnight, there were an additional 36 discharges in 25 cities: Alameda, Oakland, San Mateo, Richmond, Pacifica, Martinez, El Granada, Montara, Pittsburg, Corte Madera, San Francisco, Antioch, Redwood City, Dublin, San Leandro, Albany, Berkeley, Woodside, Vallejo, Menlo Park, Benicia, Sausalito, Pleasanton, Foster City and Hayward.

The problem isn’t new, said Sejal Choksi-Chugh, executive director of San Francisco Baykeeper, a nonprofit focused on the health of the San Francisco Bay. But the constant rain has exacerbated the issue.

“Over the years, and typically every time it rains, we see sewage spills in the streets and wastewater overflows,” she said. “But the back-to-back-to-back-to-back major storm events is causing a continuous discharge. That’s what is new.”

With continued population growth, the demands on our sewer systems have increased, say experts. Meanwhile, more development leads to more asphalt and cement, so the bulk of the rainfall ends up in our sewage systems. And our wastewater pipes, often made of clay, are aging, so water infiltrates through cracks and gaps.

The rate at which the urban Bay Area is adapting to these threats is lagging behind the speed at which rain is drowning it, said Choksi-Chugh. Cities need to invest in replacing pipes and upgrading wastewater treatment systems to increase storage capacity and install more recycling technologies, she said. Cities also could incentivize homeowners to replace old pipes through grants or low-interest loans.

In the absence of major improvements to our sewer infrastructure, these dangerous overflows will increase [as climate change leads to more extreme weather](#), say experts.

“Our old infrastructure is just not going to be up to snuff,” Choksi-Chugh said. “It’s not going to be able to handle these larger storm events, year upon year. So we really need to be thinking about the future.”