

The Panama Canal averts a crisis for now—but at a cost to drinking water

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The Panama Canal has avoided the worst of a shipping crunch that threatened to upend the global economy—but at a cost to marine life and the Latin American country's supplies of drinking water.

After imposing strict limits on vessel traffic last year as drought left

water levels languishing, the Panama Canal Authority is increasing the number of ships that can cross. Thanks to [conservation measures](#), water levels fell just over a foot for the year through March 12, compared with three feet during the same period of 2023.

Those measures, though, come with side effects. The canal recycles water from locks that vessels pass through, instead of simply flushing it into the ocean. This reused water gets saltier, and some of it infiltrates Lake Gatún, an artificial lake that forms part of the channel and is also Panama's largest source of potable supply.

The Panama Canal's challenges highlight how combating climate change carries inevitable tradeoffs. As policymakers take action to limit the effects of global warming, there can be unintended consequences for the environment and the economy. And time is of the essence: Drought is already altering the world's trade flows, creating chokepoints last year on the Mississippi River in the U.S. and the Rhine in Europe.

This year, Panama has had roughly two-thirds of its normal rainfall, said Fred Ogden, a former University of Wyoming civil engineering professor who has done extensive work in the country. Upgrades to the canal have made the situation worse, because new locks opened in 2016 to accommodate bigger ships that require more water.

Climate change means "things are changing at a pace that is basically surprising everyone," Ogden said. The canal expansion has "increased the likelihood of drought restrictions. When you throw a drought on top of that—oh my gosh. What a mess."

The Panama Canal's low water levels and efforts to conserve what's left have made Lake Gatún more salty. Salinity is at the highest since 2020, when the Smithsonian Tropical Research Institute began collecting data, and still growing, said Steve Paton, the director of the institute's physical

monitoring program.

The lake's salinity shot up after the new set of locks was inaugurated in 2016. Up until that point it was 0.05 parts per thousand, and with the increased trade flows it quickly rose and reached 0.35 parts per thousand four years ago. It's now nearing that level again and will probably hit or surpass it before the rainy season starts, Paton said.

The canal authority's chief hydrologist, Erick Córdoba, said during an interview in November that finding new sources of freshwater will be critical to ensuring Panama can meet growing demand from the population, shippers and local industry. One plan is to create a new reservoir at a river valley near Lake Gatún to supply additional water. The canal is also looking to invest in more rainwater collection to help reduce salinity in the lake, he said.

Under normal circumstances, the Panama Canal handles about 3% of the world's maritime trade volumes and 46% of containers moving from Northeast Asia to the U.S. East Coast. Bottlenecks at the canal can ripple throughout the [global economy](#), particularly as attacks by Houthis in the Red Sea add to shipping disruptions.

Last year, the El Niño weather pattern led to one of the driest years on record for the Panama Canal and forced it to slash transit. But El Niño is now fading, which means the [rainy season](#) should hit in late April or May, allowing the canal to ease shipping limits. The authority will allow 27 vessels a day to transit by late March, up from the current 24 but still well below the pre-drought capacity of 38.

"The forced reduction" in vessels "is having the desired effect of lowering total water consumption," said Jorge Luis Quijano, a consultant and former chief executive officer of the canal authority. "However, it is difficult to predict if these favorable changes in weather will be enough

to guarantee returning to 38 transits per day sometime later this year or next."

Quijano said the canal could possibly increase to 30 or 32 vessels a day after the dry season ends, and then progressively raise the limit further if rainfall is favorable. In a statement on March 11, the canal authority said it's monitoring [water levels](#) and will announce any further changes in a timely manner. It didn't respond to additional requests for comment.

Other observers are more optimistic. Volumes could return to normal in three to five months, said Julia Junnan Zhao, principal data scientist at Dun and Bradstreet, a global data and analytics provider.

Any increase in vessels through the canal will come as a relief to shippers, some of whom paid millions of dollars to jump the queue while others took longer, costlier routes around Africa or South America.

In the meantime, the threats to drinking water and [marine life](#) remain. The canal authority's strategy of recycling water could prompt marine species to start traveling between the Pacific and the Atlantic, disrupt coastal environments and even decimate fish stocks that communities along the Pacific and Caribbean rely on for food and tourism, Paton said.

Lionfish are an example of what can go wrong with invasive species. They are suspected to have escaped from aquariums along the U.S. East Coast during floods and storms, and now threaten native fish populations in the Gulf of Mexico and the Caribbean. A new saltwater corridor could wreak similar havoc on both sides of Panama.

Signs of that shift are already emerging. As rising salinity reduces the barrier between the oceans, researchers are seeing an increasing number of marine species in Lake Gatún, Paton said.

It's an example of the risks policymakers are grappling with as they confront the impact of [climate change](#) on freshwater supplies. Drought plagued regions all over the world last year, including the Americas, Africa and the Mediterranean.

The parched conditions have "given a big wake-up call to a lot of people," Ogden said. "The future does not look bright for the consistency of water resources that we've been able to rely on up until now."

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