

Earthweek: Diary of a Changing World

Week ending Friday, July 5, 2024

By Steve Newman

Climate Backups

Rising sea levels and heavier rainfall due to climate change could overwhelm older sewer systems in coastal cities in the north-eastern United States, which researchers warn may bring a public health crisis.

Those systems, designed since 1855, were intended to carry sewage as well as stormwater runoff through the same pipes.

But researchers at Drexel University warn that sewage output during heavier and more frequent downpours, coupled with higher tides, could back up into the system and spill out into streets or even people's basements.

The problem could worsen in the future as population growth along the coast results in discharges rising 21% to 66% above current levels.

Earthquakes

A magnitude 7.2 temblor along southern Peru's Pacific coast shattered windows and knocked items off shelves.

• A minor tremor caused light damage around Quito, Ecuador.

• Another tremor was felt in upstate New York.

Juiced Atmosphere

Almost all of the nearly 165 million tons of water vapor that the massive 2022 eruption of the Hunga Tonga-Ha'apai volcano spewed into the atmosphere remains there more than 2.5 years later.

Studies by NASA and the U.S. Naval Research Laboratory found that the eruption increased the concentration of water vapor, a greenhouse gas, by as much as 15% in the stratosphere.

Other scientists say the amount of water vapor has also increased much higher, in an area known as the mesopause, about 55 miles above the surface.

Earlier studies found that the limited warming effect of the record water vapor in the atmosphere will continue until about 2035.

Urchin Peril

Israeli scientists say a marine pandemic that has violently wiped out the Red Sea's sea urchin population in just a matter of months is now spreading rapidly.

The deaths were first noticed in the Gulf of Aqaba, and have quickly spread southward into the Indian Ocean and eastward toward Southeast Asia.

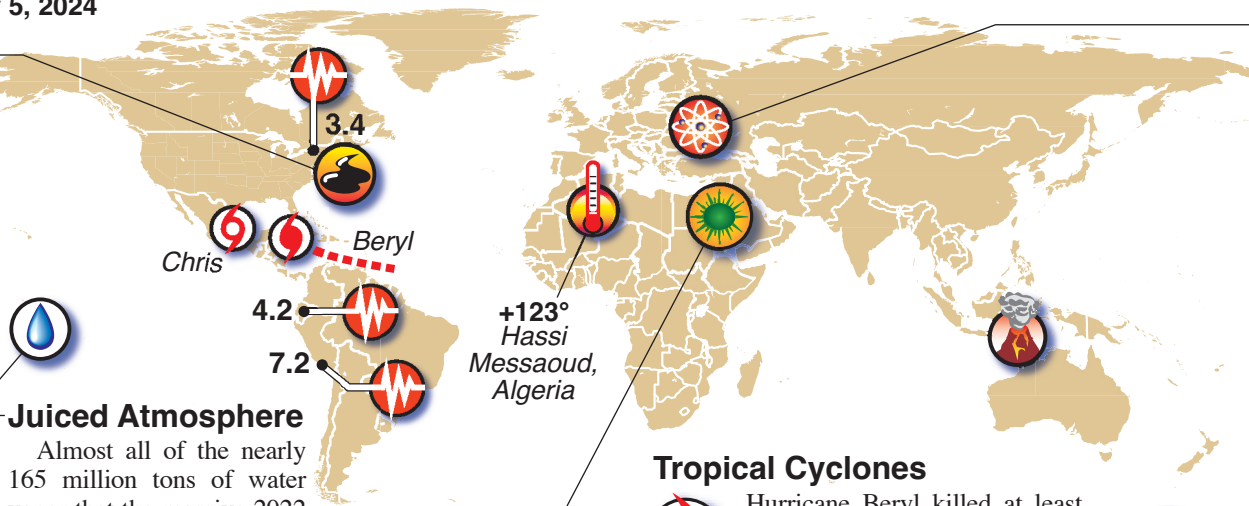
The same parasite responsible for the deaths also killed 95% of the urchins in the Caribbean two years ago.

The urchins are known as the "gardeners" of the sea because they trim algae off coral reefs that otherwise block sunlight, allowing the coral to thrive.

Tropical Cyclones

Hurricane Beryl killed at least six people while pummeling islands of the Caribbean as the earliest Category-4 and Category-5 storm on record. Beryl was fueled by unprecedented oceanic warmth across the Atlantic basin and a lack of wind shear.

• Short-lived Tropical Storm Chris brought rain to Mexico's central Gulf of Mexico coast.



Chernobyl Farming

Ukrainian experts say the level of contamination from the 1986 Chernobyl nuclear disaster has now fallen to safe levels in farmland surrounding the reactor.

"More than 80% of [surveyed] territory can be returned to agricultural production," said Valery Kashparov at the National University of Life and Environmental Science of Ukraine.

Returning those fields to production could help compensate for fields lost due to Russia's invasion.

The main exclusion zone immediately around the nuclear plant is still heavily contaminated. But surveys of 6,400 acres farther out found no radiation levels "higher than permissible," researcher Volodymyr Illienko told *New Scientist*.

Flores Eruption

Indonesia's Lewotobi Laki-Laki volcano erupted twice in a single day in East Flores province with plumes of ash and vapor.

Nearby residents were advised to refrain from outdoor activities until the air was free of the volcanic debris.



The parasite killing black sea urchins burrows into their tissue, causing them to lose their spines and also lose control of their tube feet, which they need to walk. Photo: University of South Florida

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