

# Dwindling water levels of Lake Powell seen from space

April 11 2022

## Lake Powell elevation

March average



Credit: Chart: ESA, Source: USBR

After decades of drought, water levels in Lake Powell, the second-largest human-made reservoir in the United States, have shrunk to its lowest level since it was created more than 50 years ago, threatening millions of people who rely on its water supply. Satellite images allow us to take a closer look at the dwindling water levels of the lake amidst the climate

crisis.

Straddling the border of southeast Utah and northeast Arizona, Lake Powell is an important reservoir in the Colorado River Basin. The Colorado River, which Lake Powell flows through, was dammed at Glen Canyon in the early 1960s. The lake provides water to approximately 40 million people, irrigates over 2.2 million hectares of land and has the capacity to generate more than 4200 megawatts of hydropower electricity.

In mid-March 2022, Lake Powell's elevation dropped to an astonishing 1,074 meters above sea level—the lowest the lake has been since it was filled in 1980. This drastic drop in water levels is documented in natural-color images captured by the Copernicus Sentinel-2 mission.

The area pictured below shows the surface area changes of the reservoir near Bullfrog Marina, approximately 90 km north from Glen Canyon Dam, between March 2018 and March 2022. Dry conditions and falling water levels are unmistakable in the image captured on 18 March 2022, compared to the 2018 shoreline outlined in the image in yellow.

The drop in water levels comes as hotter temperatures and falling water levels left a smaller amount of water flowing through the Colorado River. The peak inflow to Lake Powell occurs in mid-to-late spring, as the [winter snow](#) in the Rocky Mountains melts.

The line graph shows the drastic drop in average [water levels](#) in March since 2000, when Lake Powell was at around 1,120 meters elevation. The current elevation is just a few meters from what is considered the "minimum power pool"—the level at which Glen Canyon Dam is able to generate hydroelectric power. If Lake Powell drops even more, it could soon hit a "deadpool" where water will likely fail to flow through the dam and onto the nearby Lake Mead.

According to a report compiled by the U.S. Geological Survey in cooperation with the Bureau of Reclamation, Lake Powell's storage capacity has lost nearly 7% of its potential storage capacity from 1963 to 2018, when the diversion tunnels of Glen Canyon Dam closed and the reservoir began to fill.

The capacity of the reservoir is said to be shrinking because of sediments transported by the Colorado and San Juan Rivers. These sediments settle at the bottom of the reservoir and decrease the total amount of water the reservoir can hold.

Climate change is expected to make droughts more severe in the future. According to the National Oceanic and Atmospheric Administration (NOAA) Spring Outlook for the U.S., nearly 60% of the continental U.S. is experiencing drought.

These conditions are likely to continue across more than half of the continental United States through at least June, straining water supplies and increasing the risk of wildfires. While these conditions are not new, the agency expects them to potentially worsen in the coming months.

Provided by European Space Agency

Citation: Dwindling water levels of Lake Powell seen from space (2022, April 11) retrieved 26 April 2024 from <https://phys.org/news/2022-04-dwindling-lake-powell-space.html>

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