

Caspian crisis: Sinking sea levels threaten biodiversity, economy and regional stability

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Devastating impact on Caspian Sea level drop

By 2100 the Caspian Sea will be 9-18 meters lower.

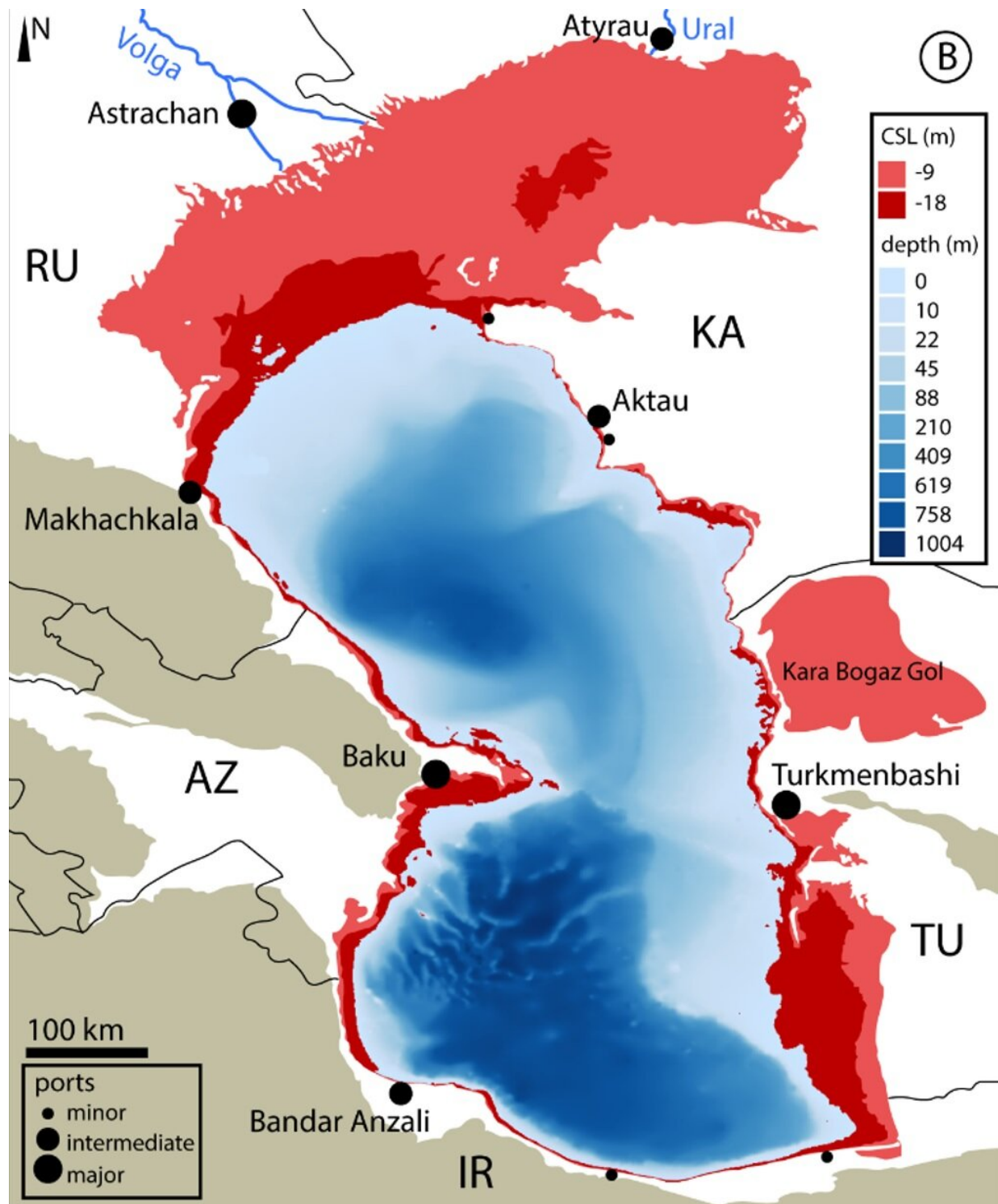


Infographic showing the effects of water level change in the Caspian Sea area.
Credit: Naturalis

Coastal nations are rightly worried about sea level rise, but in the countries around the Caspian Sea, over 100 million people are facing the opposite problem: an enormous drop in sea level. Technically, this sea is a land-locked lake, but it is the largest on the planet (371.000 km²), and quite salty. Since the '90s, the water level has been dropping a few centimeters every year. This drop will accelerate during the upcoming decades, according to scientists from the German universities of Gießen and Bremen, together with Dutch geologist Frank Wesselingh.

The [water levels](#) of the Caspian Sea will be 9 to 18 meters lower than they are now, German and Dutch researchers calculate. In an article published in *Communications Earth & Environment*, they urge the world to act.

"If the North Sea would drop 2 or 3 meters, access to ports like Rotterdam, Hamburg and London would be impeded. Fishing boats and container giants alike would struggle, and all the countries on the North Sea would have a huge problem," Wesselingh says. "Here, we are talking about a decrease of no less than nine meters—in the best-case scenario." In the [worst-case scenario](#), the drop is 18 meters, and the Caspian Sea will lose over a third of its surface area.



Map showing the exact locations of Caspian Sea surface change. Credit: Prange et al.

In the journal *Communications Earth & Environment*, the three scientists are calling for action. Increased evaporation and the loss of sea ice in the winter will accelerate water-level drop, they explain. This will affect the unique ecosystems in the area, with their [migratory birds](#), beluga and the endemic Caspian seal, which raises its offspring on the sea ice in the North of the Caspian Sea. It will also have dire consequences for the millions of people living near the sea, or around the rivers that run into it.



The Caspian Sea is the natural habitat of the Caspian seal, whose pups can only survive on ice. The parts of the sea that freeze over will diminish by 98% over the course of the 21st century. Credit: No credit necessary

Politically tense region

These problems also play in a region that is already politically tense. Azerbaijan, Russia, Iran, Turkmenistan and Kazakhstan all share a piece of the Caspian Sea, and would have to make new agreements regarding borders and fishing rights. Wesselingh and his German colleagues urge the formation of an international task force led by the United Nations Environmental Programme that would coordinate the mitigation of this problem.

"This aspect of climate change—falling levels of lakes—could be similarly devastating as global [sea level rise](#)," the three researchers write in their article. "Immediate and coordinated action is required to make up for valuable time lost. The shrinking Caspian Sea might serve as a poster child of the problem, and will help to galvanize such actions."

More information: Matthias Prange et al, The other side of sea level change, *Communications Earth & Environment* (2020). [DOI: 10.1038/s43247-020-00075-6](#)

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