

# Scientists warn that saline lakes in dire situation worldwide

October 23 2017

---



Conservationists explore the dried lake bed on the south shore of Great Salt Lake. Credit: Wayne Wurtsbaugh

Saline lakes around the world are shrinking in size at alarming rates. But what—or who—is to blame? Lakes like Utah's Great Salt Lake, Asia's Aral Sea, the Dead Sea in Jordan and Israel, China's huge Lop Nur and Bolivia's Lake Popo are just a few that are in peril. These lakes and others like them are suffering massive environmental problems

according to a group of scientists and water managers in Utah and Montana.

Saline lakes are critically important for wildlife, industry, and human health. They provide habitat for migrating birds, minerals for extractive industries, and recreational opportunities, all of which are economically important. Great Salt Lake, for example, has an economic value of \$1.32 billion per year.

When full, [saline lakes](#) protect nearby residents from dust storms created by the dry lakebeds. This dust causes asthma and other respiratory diseases as demonstrated after the desiccation of the Aral Sea and California's Owens Lake. Although these lakes grow and shrink with natural climate cycles, human withdrawals of [water](#) create a persistent demand that lowers lake levels—sometimes drastically.

In the recent *Nature Geoscience* paper, "Decline of the world's saline lakes," authors Wayne Wurtsbaugh, Sarah Null, Peter Wilcock and Frank Howe of Utah State University; Craig Miller of the Utah Division of Water Resources, Justin deRose of the U.S. Forest Service, Maura Hahnenberger of Salt Lake Community College and Johnnie Moore of the University of Montana describe the dramatic effects of water use and climate change on the world's saline lakes, dating as far back as 1300 years ago when the huge lakes of China's Tarim Basin were dried up due to water development of Himalayan Rivers. Focusing on the Great Salt Lake, the authors created a water balance that demonstrates how water development for agriculture and other uses over the last 160 years has caused the lake to decline approximately 11 feet and lose nearly 50% of its area. This has degraded habitat for the huge migrations of birds that use the lake for nesting and feeding, caused problems for mineral extraction and recreational use, and exposed nearby Salt Lake City to increasing dust storms from the exposed lakebed.



The dried marina at Antelope Island became inaccessible as the lake shrunk, limiting boating on the lake (Photo: Mar. 2, 2016). Credit: Wayne Wurtsbaugh

"The Great Salt Lake is definitely shrinking," says lead author Wurtsbaugh, professor in USU's Department of Watershed Resources and the Ecology Center. "Although the lake has risen and fallen with droughts and floods in recent decades, the persistence of water diversions has decreased the lake's level about 11 feet and exposed a lot of lake bed. The state's plans to continue developing water in the basin will only worsen the problem." Instead, the researchers argue that additional water resources, approximately 29%, must be found to bring the [lake](#) back to a healthy state.

"The state has had some success in water conservation for households, but since water for agriculture represents over 60% of water use, domestic conservation represents only a minor reduction," says Wurtsbaugh. "Reductions in water use from all sectors will be needed if we are to solve this problem."



A researcher examines organisms left behind in a puddle on the drying shore of Great Salt Lake. Credit: Wayne Wurtsbaugh

**More information:** Dry Juan de Fuca slab revealed by quantification of water entering Cascadia subduction zone, *Nature Geoscience* (2008). [DOI: 10.1038/ngeo305](https://doi.org/10.1038/ngeo305)

Provided by Utah State University

Citation: Scientists warn that saline lakes in dire situation worldwide (2017, October 23)  
retrieved 27 April 2024 from

<https://phys.org/news/2017-10-scientists-saline-lakes-dire-situation.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.