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Intelligence

Climate researchers color-code stages of ocean acidification to illustrate changes

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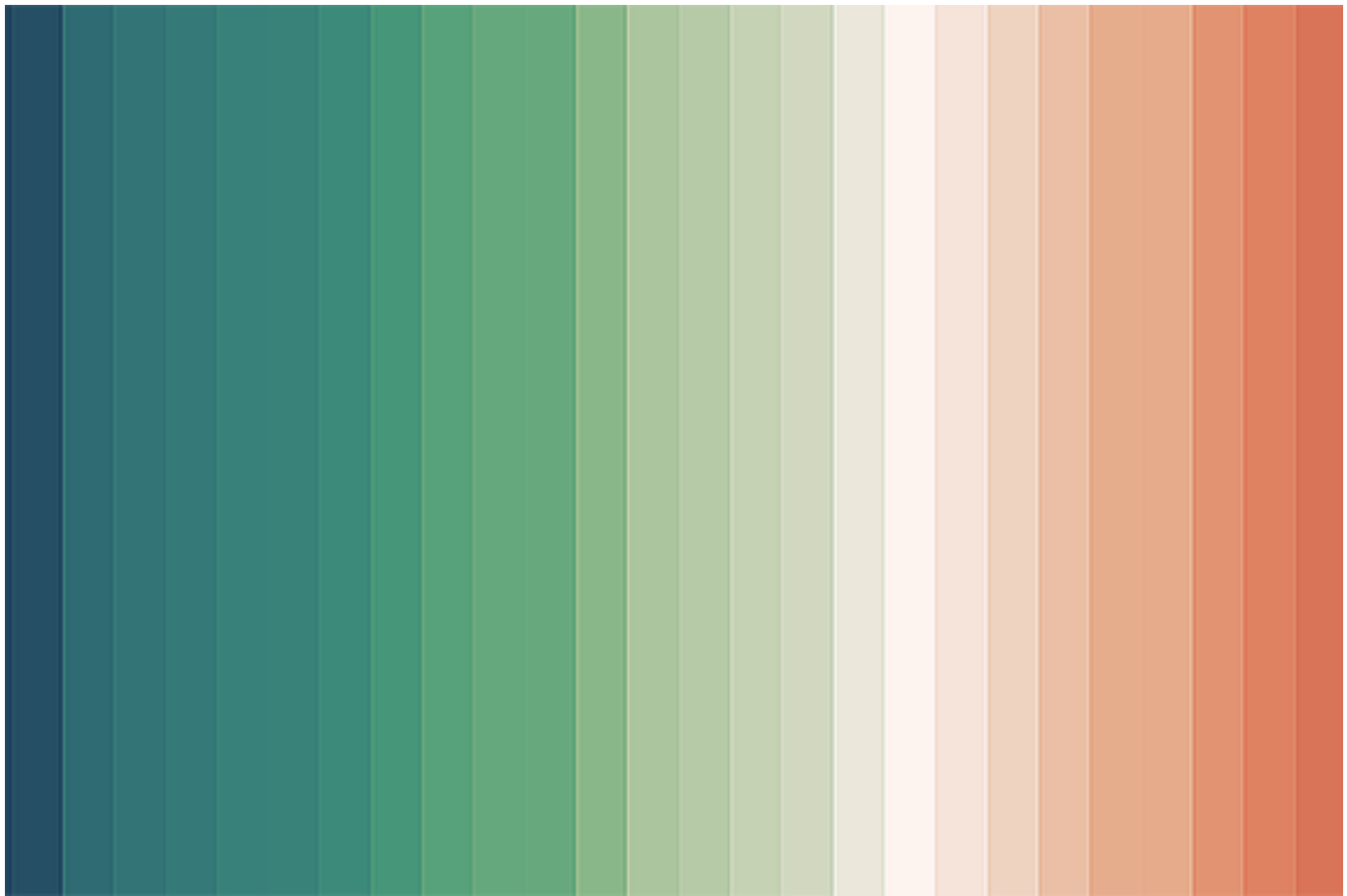
By Responsible Seafood Advocate

ETH Zurich bases its system on four decades of observations

To illustrate how ocean acidification has changed the ocean's pH over the years, climate researchers from ETH Zurich developed a color-coded stripe system to help people better understand the concept.

Anthropogenic carbon dioxide emissions are acidifying the ocean, ETH says, and its online visualization tool shows how, via color-coded stripes, using data collected over 40 years. The **Ocean Acidification Stripes tool** (<https://oceanacidificationstripes.info/s/ph/basin/globalocean/entirebasin>) also shows how ocean acidification has changed the chemistry of oceanic regions.

“Despite these profound changes, many people are not aware of what is happening to our oceans,” said Nicolas Gruber, a marine researcher and professor of environmental physics at ETH Zurich (**Eidgenössische Technische Hochschule Zürich** (<http://www.ethz.ch/>)).



To illustrate how ocean acidification has changed ocean pH, climate researchers developed an online tool and color-coded stripe system. Image by Nicolas Gruber and Luke Gregor, courtesy of ETH Zurich.



(<http://www.expalsa.com/>).

The ocean absorbs a large part of the extra heat that the increased concentration of greenhouse gases generated in the atmosphere and they also absorb about one-third of man-made carbon emissions from the atmosphere.

The graphic tool – inspired by the “temperature stripes” or “climate stripes” by the British climate scientist Ed Hawkins – depicts ocean acidification in different ocean regions over time in an intuitive manner.

“We aim to make ocean acidification more visible and raise awareness that this environmental change is another major consequence of anthropogenic CO₂ emissions alongside atmospheric warming,” explains Gruber.

The scientific basis for the visualization is an observation-based dataset on ocean acidification called OceanSODA-ETHZ. It covers almost all ocean regions over the last forty years (1982 to 2021). OceanSODA-ETHZ was created in 2021 by Gruber's postdoctoral researcher Luke Gregor, who combined ship measurements and satellite data using machine learning.

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