

Salinity changes threatening marine ecosystems, new study shows

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UNF professor Dr. Cliff Ross is standing in the ocean contemplating the salinity study. Credit: University of North Florida

A groundbreaking study published today reveals the critical yet severely understudied factor of salinity changes in ocean and coastlines caused by climate change. The study was co-authored by an international team of researchers, including Dr. Cliff Ross, University of North Florida biology chair/professor, and Dr. Stacey Trevathan-Tackett, UNF biology graduate program alum and research faculty member at Deakin University in Australia.

Changes in salinity, or [salt content](#), due to [climate change](#) and land use can have potentially devastating impacts on vital coastal and estuarine ecosystems, yet this has rarely been studied until now. This new research provides valuable insights into the threats posed by anthropogenic salinity changes to marine and [coastal ecosystems](#) and outlines consequences for the health and economy of local communities in oftentimes densely populated regions.

The research team looked at how climate change-related variations in rainfall as well as local man-made impacts can lead to extreme flood and drought events, affecting freshwater availability and impacting salinity in sensitive ecosystems. As sea-levels rise, saltwater inflows in coastal and low-lying areas can also cause devastating impacts. Certain groups such as microorganisms, plankton, coral, mangroves, tidal marshes, macroalgae and seagrass are most at risk and can quickly face ecosystem collapse.

The researchers warn that salinity changes are predicted to intensify alongside ocean warming, and they stress the urgency of immediately addressing these salinity challenges to safeguard marine and coastal ecosystems and biodiversity.

"Human-induced salinity changes impact [marine organisms](#) and

ecosystems" is published in *Global Change Biology*.

More information: Till Röhlig et al, Human-induced salinity changes impact marine organisms and ecosystems, *Global Change Biology* (2023). [DOI: 10.1111/gcb.16859](https://doi.org/10.1111/gcb.16859)

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