

Experts create first legal roadmap to tackle local ocean acidification hotspots

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Coastal communities hard hit by ocean acidification hotspots have more options than they may realize, says an interdisciplinary team of science and legal experts. In a paper published in the journal *Science*, experts from Stanford University's Center for Ocean Solutions and colleagues make the case that communities don't need to wait for a global solution to ocean acidification to fix a local problem that is compromising their marine environment. Many localized acidification hotspots can be traced to local contributors of acidity that can be addressed using existing laws, they wrote.

In addition to Stanford University, the team of experts drew from the [National Oceanic and Atmospheric Administration](#) (NOAA), the U.S. [Environmental Protection Agency](#) (EPA), the National Center for Ecological Analysis and Synthesis, and Oregon State University.

"Since an acidification hotspot can negatively impact a community, its causes need to be tackled quickly," said Melissa Foley of the Center for Ocean Solutions, a lead author of the paper. "We identified practical steps communities can take today to counter local sources of acidity." The paper, entitled "Mitigating Local Causes of Ocean Acidification with Existing Laws," is the first to lay out how acidification hotspots can be reduced by applying federal and state laws and policies at a local level.

Coastal waters have a pH "budget" that can be pushed beyond its spending limits when local and atmospheric sources of acidity are

combined. Many hotspots are driven by local sources of ocean acidification, such as agricultural and residential runoff and [soil erosion](#), not just by [atmospheric CO2](#) being absorbed into the ocean. "The alignment of a localized [ecological harm](#) with a local policy solution is rare," said Ryan Kelly of the Center for Ocean Solutions, a lead author.

Ocean acidification reduces the ability of [marine creatures](#) to create shells and skeletons, harming everything from commercial oyster beds to coral reefs. Puget Sound, Wash., the Chesapeake Bay and other communities hit by ocean acidification hotspots have seen their livelihoods and lifestyles damaged.

A recent lawsuit against the EPA showed how existing laws could be applied to the problem of [ocean acidification](#). In a memorandum required by the settlement, the EPA emphasized that states should identify waters that are impaired due to declining pH levels and track them over the long term. "Using pH levels as a type of 'master variable' helps judge the cumulative impact of a variety of pollutants that are flushed into the ocean by coastal communities," said Melissa Foley. "This is important to understanding the magnitude of a water quality problem."

Provided by Stanford University

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