

# Blue mussels' ability to buffer climate-induced stress could benefit aquaculture

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Blue mussels can change patterns of gene expression to make more proteins that help with heat stress and facilitate energy production.

This ability makes wild blue mussels (genus *Mytilus*) somewhat resilient to higher ocean temperature, acidification and less food, says Sarah Kingston, a visiting professor in the School of Marine Sciences at the University of Maine.

That's important as changes in the Gulf of Maine—rising temperatures, acidification and less food—are projected to worsen in the next century, says Kingston, who made the discoveries during a collaborative study with Dave Carlon and Pieter Martino when she was a visiting professor at Bowdoin College.

The gulf is a logical natural laboratory in which to test questions about evolution and adaptation, says Kingston, a molecular ecologist who is teaching a core Semester by the Sea course about invertebrates at the Darling Marine Center.

"The Gulf of Maine is changing rapidly, and we want to know how those changes may impact marine creatures that are important to us (as a [food source](#) and a key member of ecosystems) like [blue mussels](#)," she says.

The results have important implications for aquaculture. Future studies will illuminate the set of genes underlying variance in calcification rate (for shells). The hardier genetic variants could be used for selective

breeding, says Kingston.

**More information:** Pieter A. Martino et al. Blue Mussel (Genus *Mytilus*) Transcriptome Response to Simulated Climate Change in the Gulf of Maine, *Journal of Shellfish Research* (2019). [DOI: 10.2983/035.038.0310](https://doi.org/10.2983/035.038.0310)

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