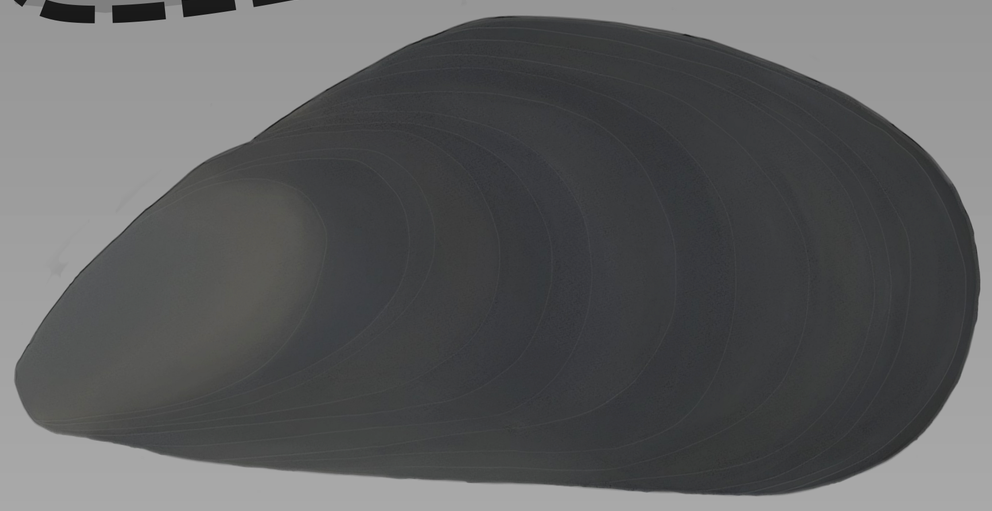
Metabolic depression

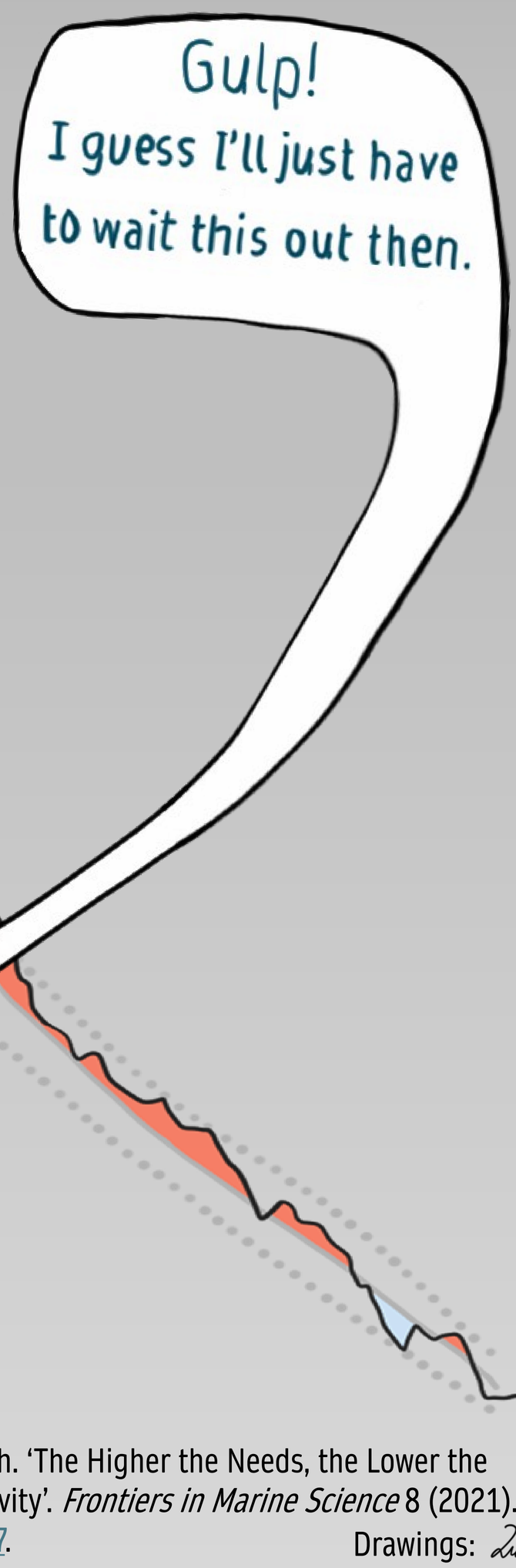
Metabolic depression is when an organism intentionally lowers its metabolic rate, reducing energy use, oxygen consumption, and activity levels. It's like putting the body into "low-power mode" to survive tough conditions.



Some young blue mussels *(Mytilus spp.)* may survive extreme heat by slowing down their metabolism, reducing how much they eat and breathe. This strategy, called metabolic depression, helps them avoid a dangerous mismatch between energy supply and demand during for example heatwaves or hypoxic conditions .

Research suggests that mussels with a naturally lower metabolic rate are better at handling daily temperature swings, but only a few individuals may have what it takes to survive future warming.

Metabolic depression also slows growth and reproduction, so it's a strategy used only when necessary. Species that can use metabolic depression may be better equipped to survive climate extremes, but only if they also have time to recover and reproduce afterwards.



Vajedsamiei, Jahangir, Martin Wahl, Andrea Lee Schmidt, Maryam Yazdanpanahan, and Christian Pansch. 'The Higher the Needs, the Lower the Tolerance: Extreme Events May Select Ectotherm Recruits With Lower Metabolic Demand and Heat Sensitivity'. *Frontiers in Marine Science* 8 (2021). https://www.frontiersin.org/articles/10.3389/fmars.2021.660427.

Drawings: