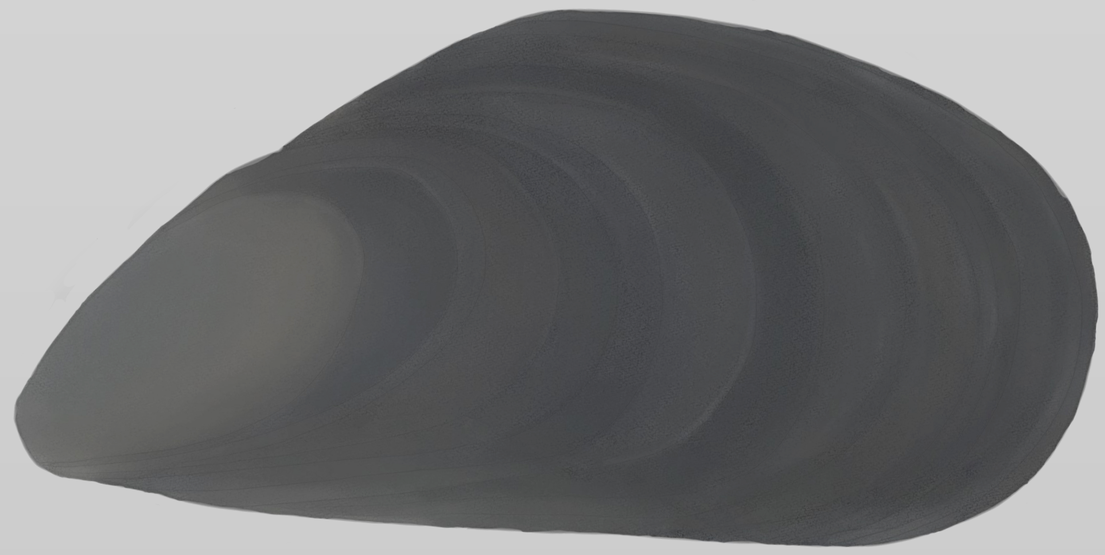
Coping mechanism 3: Metabolic depression



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 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 heatwaves.

Research suggests that mussels with a naturally lower metabolic rate are better at handling daily temperature swings. However, this heat tolerance seems to come from natural selection, not short-term acclimation—meaning only a few individuals may have what it takes to survive future warming.

While it helps survival, it can also slow 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.