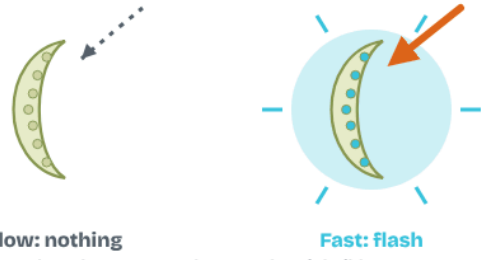
That is why

Why do waves glow blue at night?

Plankton cells flash only at a fast, hard jolt, and the flash is blue-green, the light that travels farthest in seawater.

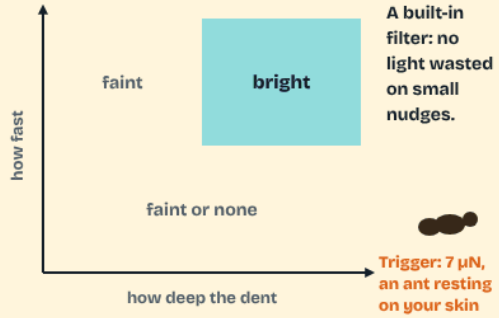
A A fast, hard jolt only

The same push, at two speeds (Scripps)



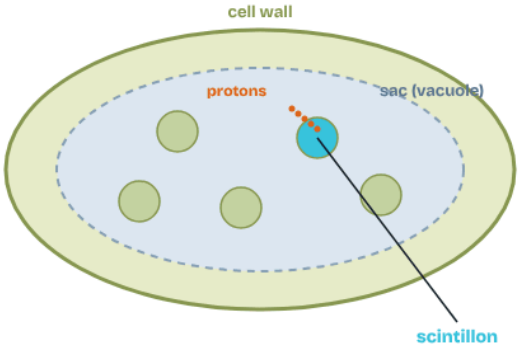
slow: the energy soaks away; fast: it builds up

How bright? Depth and speed (Cambridge)



A built-in filter: no light wasted on small nudges.

B Inside the flash: about 15 ms



1. **The wall bends**
   ion channels in the membrane open
2. **Acid rushes in**
   protons flood the scintillons
3. **pH drops below 6**
   the guard protein lets luciferin go
4. **Luciferase reacts**
   the energy leaves as light

jolt — flash, about 15 ms later

C Why blue, and why bother



1 A burglar alarm?

A copepod grabs one cell: it flashes, and the copepod leaps away. The leaps help the copepod's predators find it. Saving the grabbed cell is the main payoff (2024); calling in squid is a bonus.

Each cell guards itself; blue is the color the sea lets travel.

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Diagram: https://thatiswhy.com/diagrams/why-waves-glow-blue-at-night/ · Full guide: https://thatiswhy.com/why-do-waves-glow-blue-at-night/