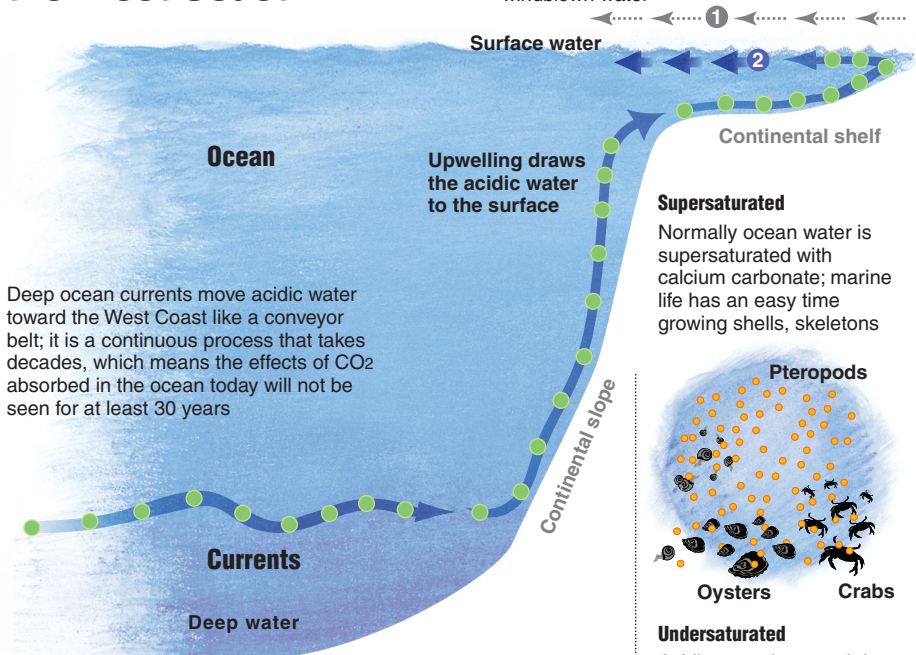


How ocean acidification affects the West Coast

West Coast Upwelling happens when

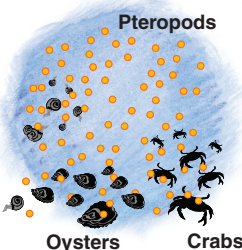
- 1 Wind blowing across ocean surface pushes surface water away from the West Coast shore
- 2 Deep, cold water is drawn up to replace the windblown water



Deep ocean currents move acidic water toward the West Coast like a conveyor belt; it is a continuous process that takes decades, which means the effects of CO₂ absorbed in the ocean today will not be seen for at least 30 years

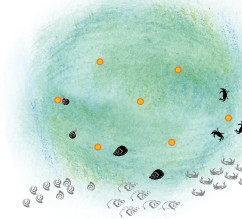
Supersaturated

Normally ocean water is supersaturated with calcium carbonate; marine life has an easy time growing shells, skeletons

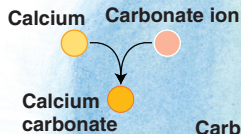


Undersaturated

Acidic water has much lower levels of calcium carbonate, making it extremely hard to grow shells and skeletons; most marine creatures will expend all their energy trying, starving themselves to death in the process



Calcium carbonate is a basic building block for marine life; how it forms ...



... and how acidic water prevents it

Carbonic acid releases a hydrogen ion and becomes a bicarbonate

Free hydrogen

Carbonate ion

Hydrogen attaches to the carbonate ion, turning it into a bicarbonate

Calcium joins with a carbonate ion and forms calcium carbonate; the process repeats over and over, resulting in water supersaturated with calcium carbonate

Calcium has nothing to join with to make calcium carbonate; this process repeats over and over, resulting in water that is undersaturated with calcium carbonate