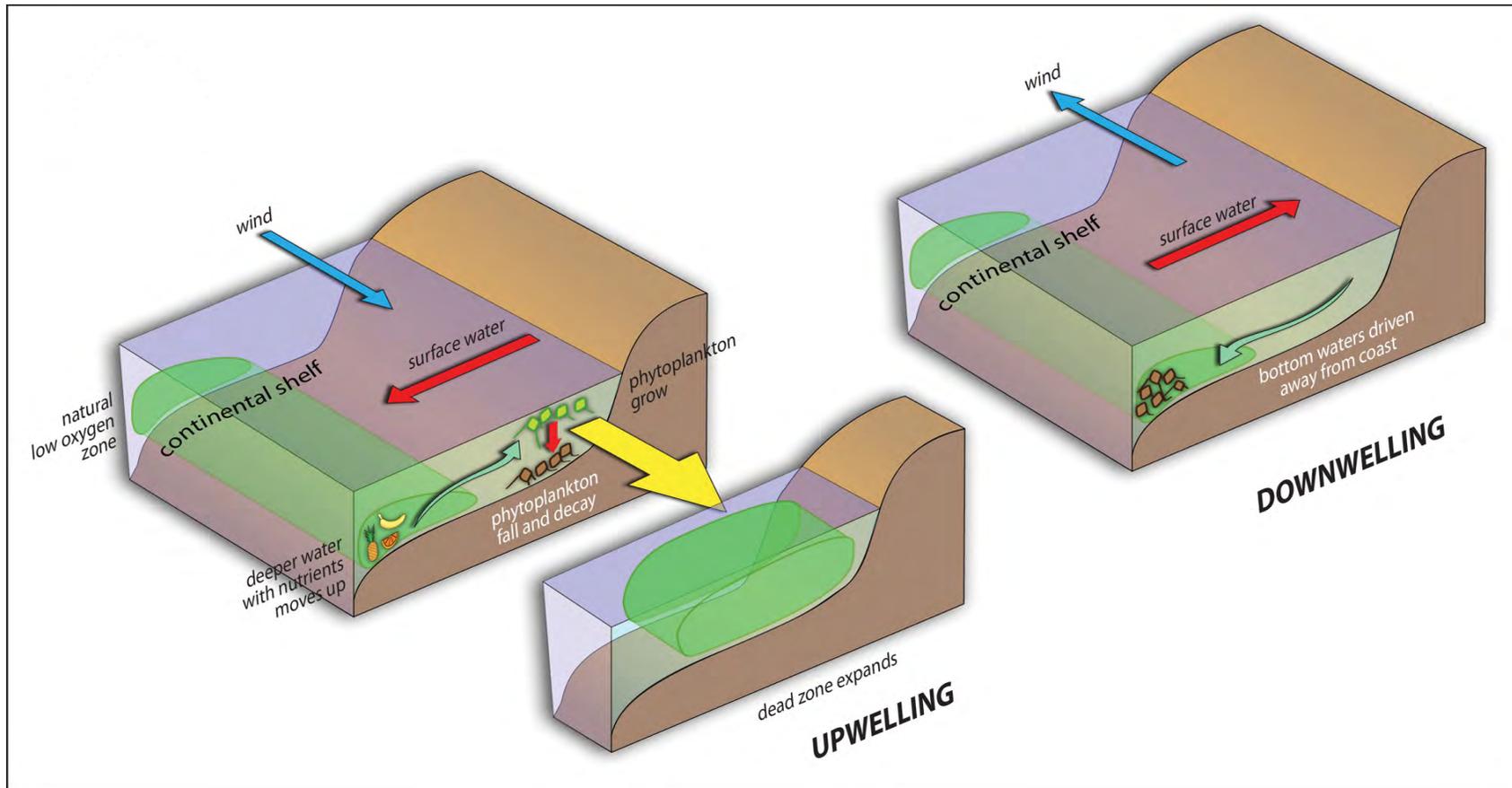


# DEAD ZONES

## The Life Cycle of Oregon's Dead Zones



Along the coast of the Pacific Northwest, northerly winds together with the Earth's rotation drive surface waters away from the shore and pull up naturally nutrient-rich but oxygen-poor waters from the depths in a process called "upwelling." This nutrient-rich upwelled water fertilizes phytoplankton blooms. Some phytoplankton ultimately sink and then decay through oxygen-consuming processes that cause low-oxygen zones to develop on the ocean floor.

When southerly winds form, they work with the Earth's rotation to drive surface waters back towards the shore and to drive bottom waters away from the shore in a process known as downwelling. When sufficiently strong and frequent periods of downwelling interrupt periods of upwelling, low-oxygen zones are disrupted and therefore do not expand into near-shore waters. But since 2002, changes in winds and oceanic circulation and reduced oxygen levels of upwelled waters have expanded low-oxygen zones into near-shore waters.