

TROPICALIZATION

around the GLOBE



DEFINITION

The transformation of ecosystems by tropical organisms that migrate towards the poles in response to warming minimum winter temperatures.

VOCABULARY

- **Tropicalization:** Range expansion of tropical organisms towards the poles.
- **Climate Change:** Long-term shifts in temperatures and weather patterns.
- **Tropical:** Native to the tropics. Examples include rainforests, coral reefs, scrublands, and deserts.
- **Temperate:** Native to areas between the tropics and polar zones. Examples include deciduous forests and chaparral.
- **Cold-stunning:** Loss of mobility in animals due to extreme cold weather that can result in stranding and/or death.

CASE STUDIES

Many native plants and animals are impacted by **tropicalization**. Warming minimum winter temperatures have been an understudied result of **climate change** that allows **tropical** organisms to expand into **temperate** zones.

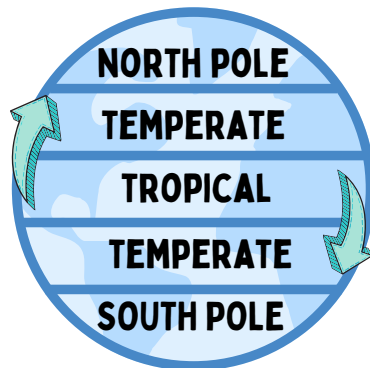


Red mangroves (*Rhizophora mangle*) die when the temperatures are less than 25 degrees F. Lack of such extreme cold is transitioning salt marshes and intertidal oyster reefs into mangrove forests in Florida, Louisiana & Texas.

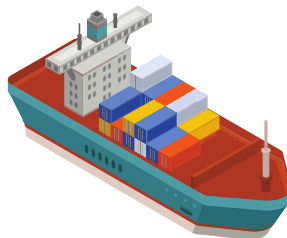


Tropicalization allows tropical fish like the parrotfish *Calotomus japonicus* to expand its range in Japan, destroying more than 40% of underwater kelps. In Japan, the transition from algal forest to sea desert is known as "isoyake".

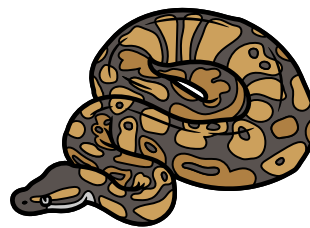
HOW DO ORGANISMS GET TO NEW CLIMATES?



RANGE EXPANSION
(via seeds, swimming, flying, crawling, walking, etc.)



SHIPPING



PET & PLANT TRADE



HUMANS

