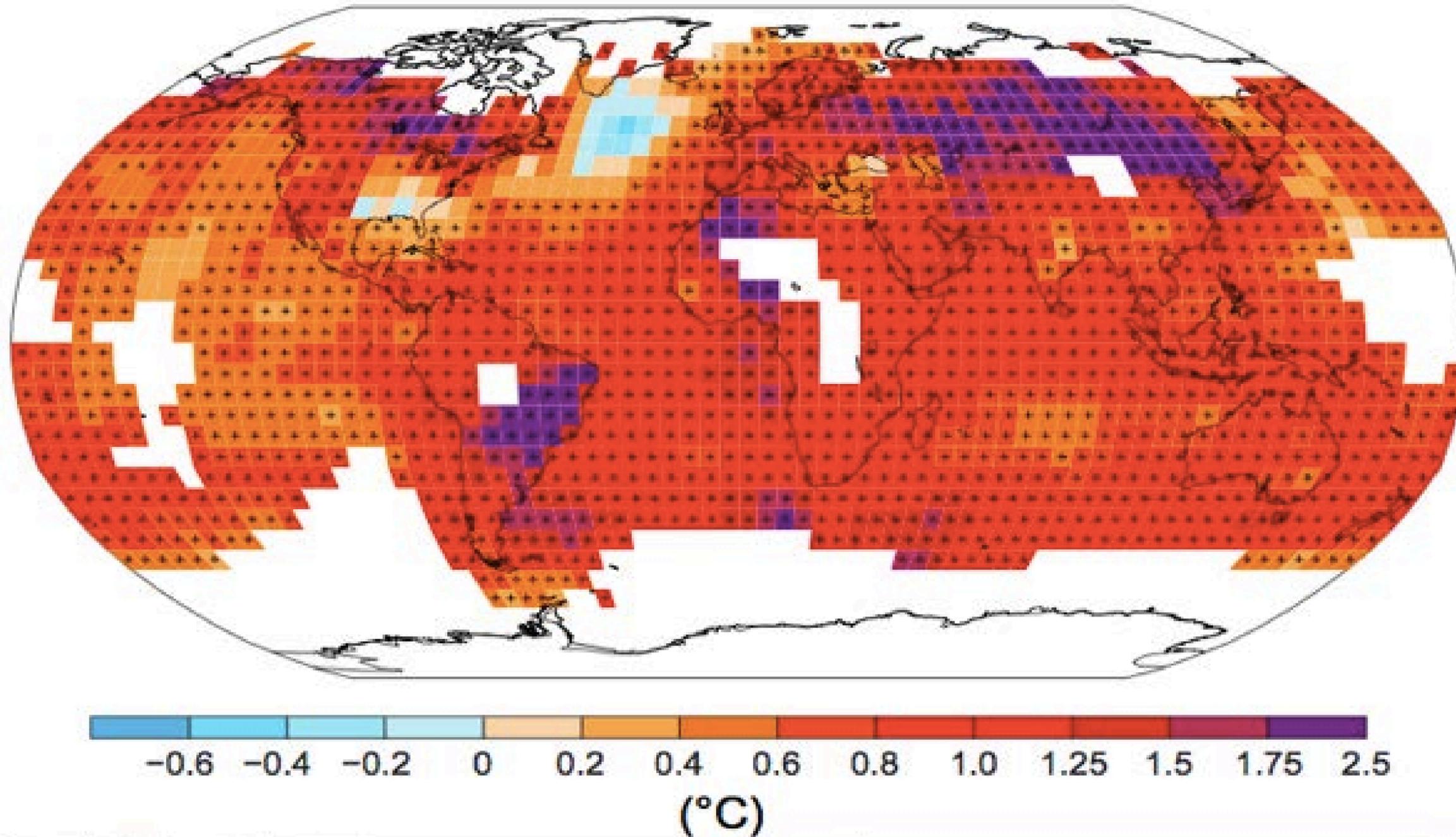




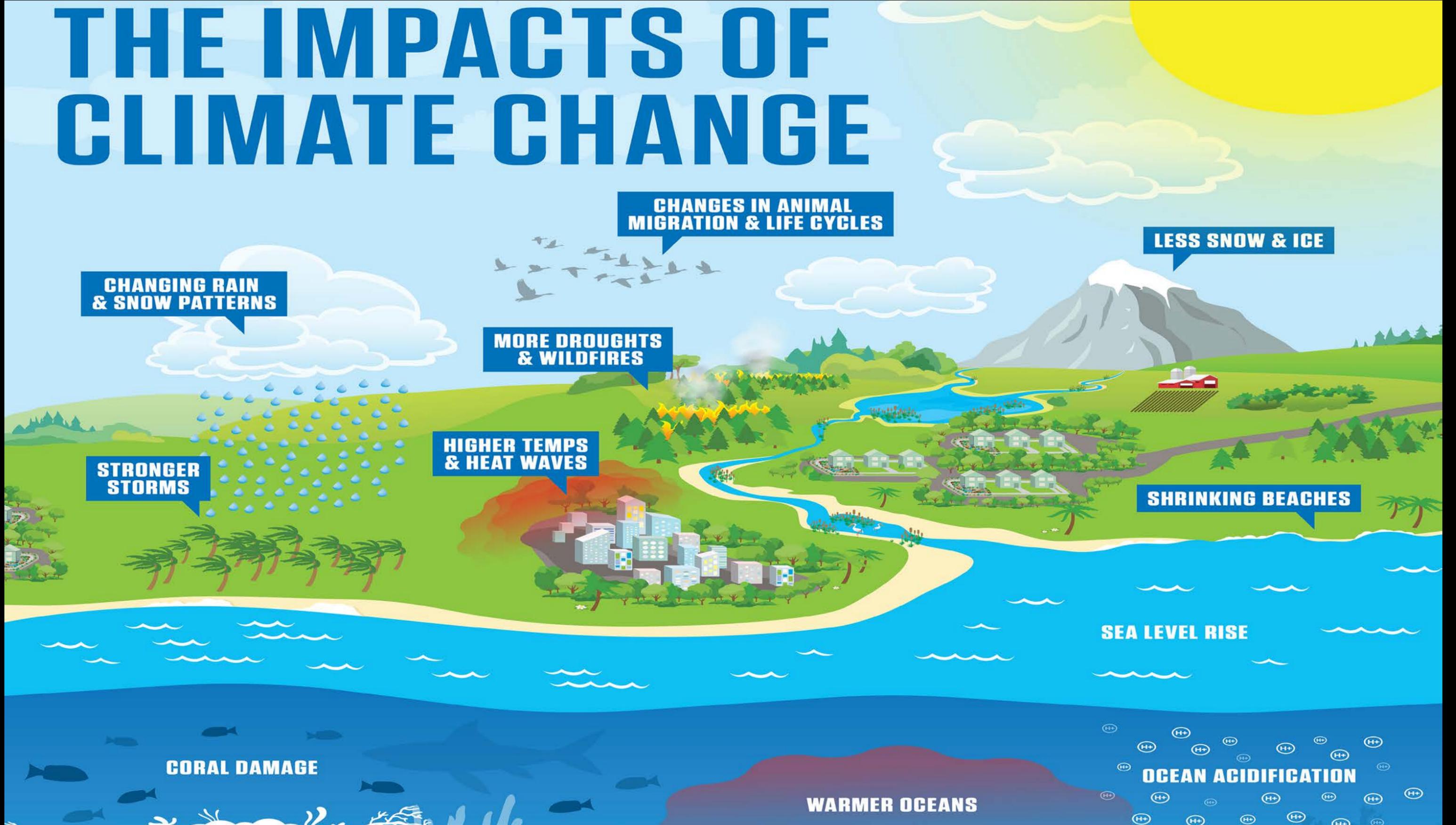
The Carbon connection

Ever Warming Earth

Observed change in surface temperature 1901–2012



THE IMPACTS OF CLIMATE CHANGE



CHANGING RAIN & SNOW PATTERNS

CHANGES IN ANIMAL MIGRATION & LIFE CYCLES

LESS SNOW & ICE

MORE DROUGHTS & WILDFIRES

STRONGER STORMS

HIGHER TEMPS & HEAT WAVES

SHRINKING BEACHES

SEA LEVEL RISE

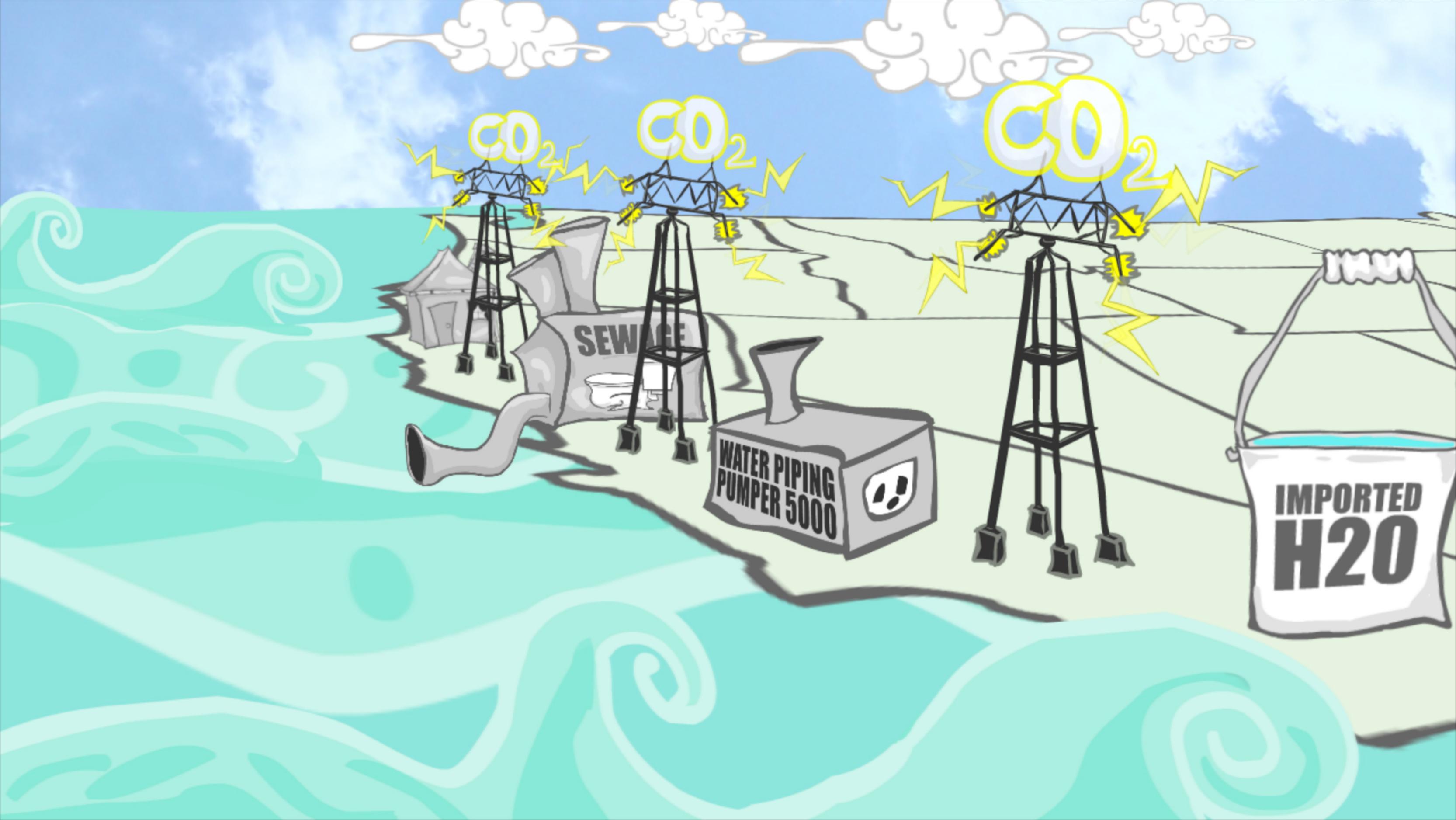
CORAL DAMAGE

WARMER OCEANS

OCEAN ACIDIFICATION

A Disappearing Del Mar Beach





CO₂

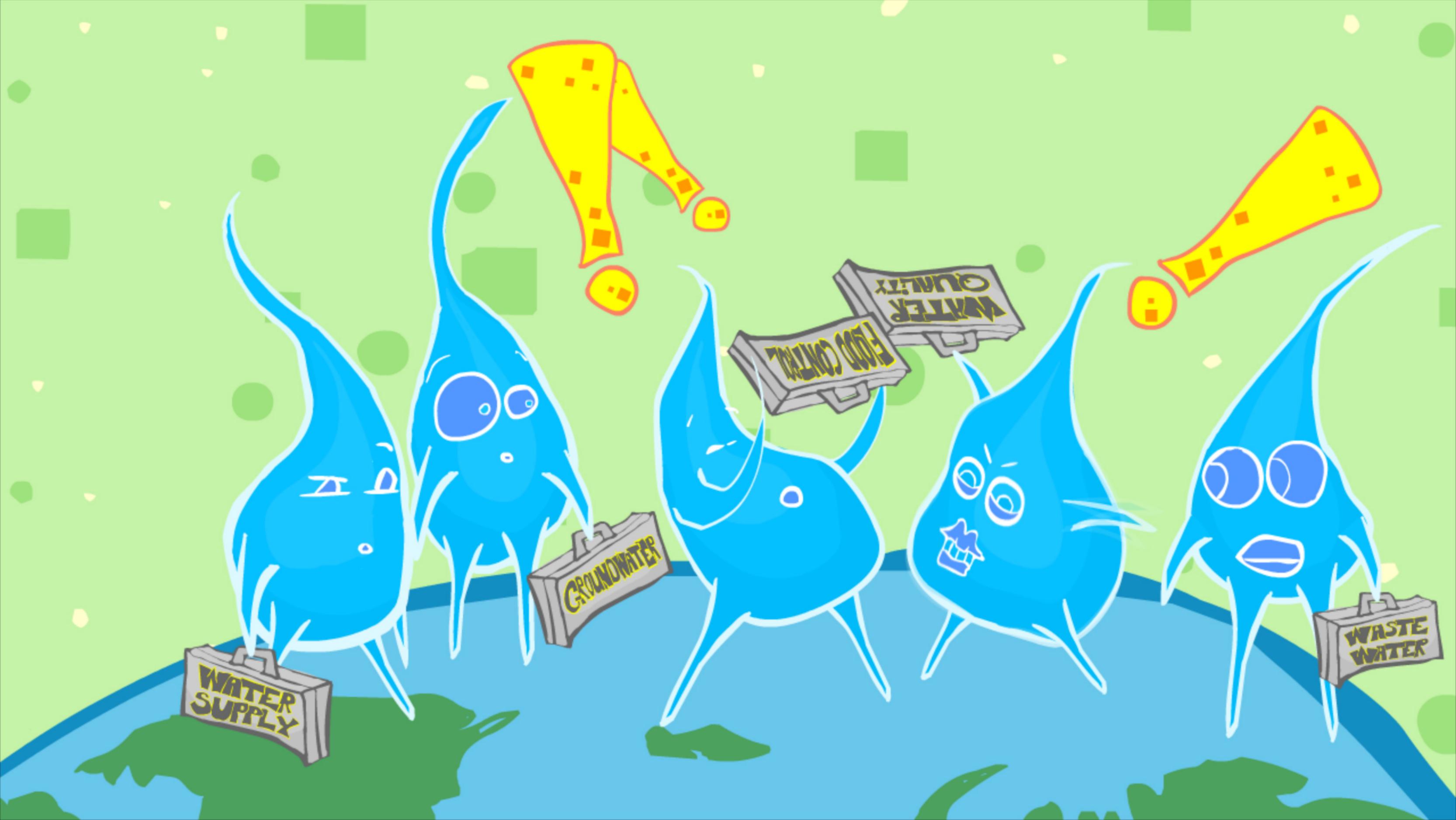
CO₂

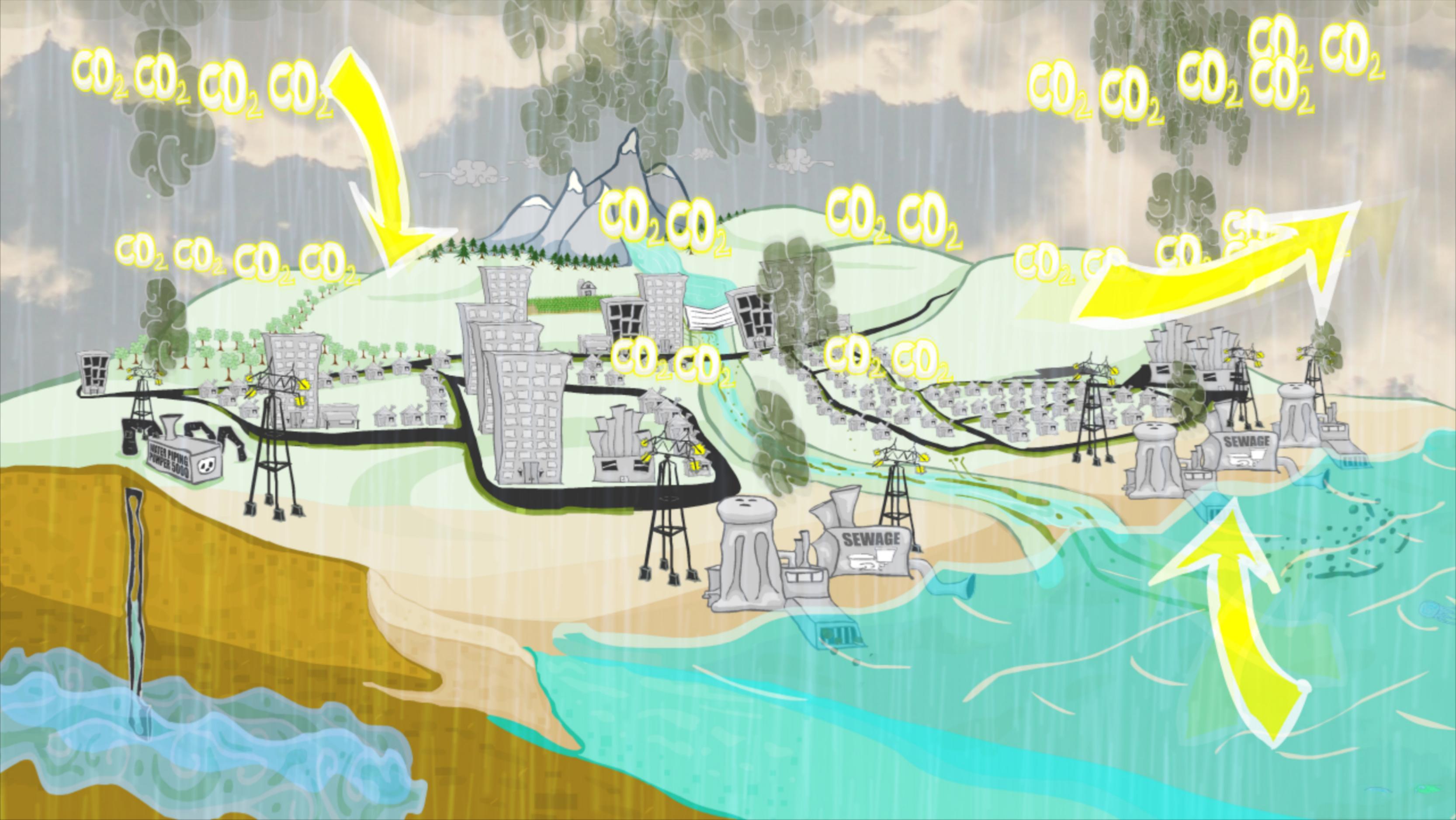
CO₂

SEWAGE

WATER PIPING
PUMPER 5000

IMPORTED
H₂O





CO₂ CO₂ CO₂ CO₂

CO₂ CO₂ CO₂ CO₂ CO₂ CO₂

CO₂ CO₂ CO₂ CO₂

CO₂ CO₂ CO₂ CO₂

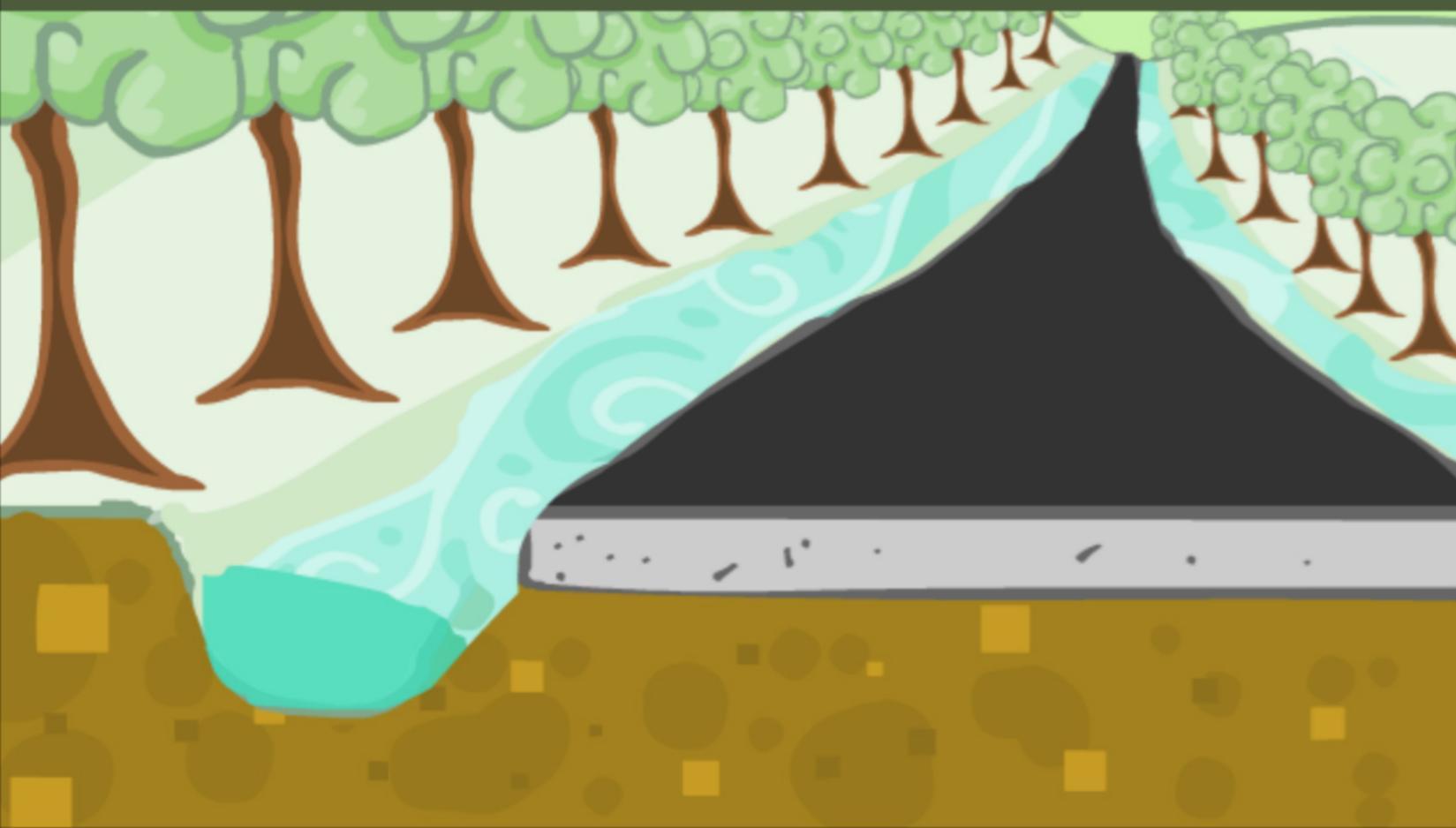
CO₂ CO₂ CO₂ CO₂ CO₂

CO₂ CO₂ CO₂ CO₂

WATER PIPING
PURPER 5000

SEWAGE

SEWAGE



The 3 R's Of Water

REDUCE

- water use
- runoff
- flooding

- energy
- pollution

REUSE

- rain
- graywater

- groundwater

RECYCLE

- wastewater



Coastal and Ocean Impacts Related to Climate Change

-Sea Level Rise—6 feet by 2100

* 1 ft. of SLR is actually a vertical measurement not horizontal. A 1 ft. rise could cover a large amount of beach depending on the slope of the beach!

-Altered ocean currents

-Increased ocean temperature

-Altered ocean salinity

-Beach Erosion

-Ocean acidification

-Reduced ecosystem health

-Potential loss of surfing waves!



“Alone a drop, together a tide!”

Joshua May

Thank you!

Julia Chunn-Heer
julia@sufridersd.org



Adaptation Planning

Plan early, it is more cost effective, and provides for more options!

- City of Imperial Beach's long-term assessment of using managed retreat over armoring. By 2100, City will *spend nearly five times* as much on armoring compared to managed retreat.
- UN Secretary General Ban Ki-moon reminds us every **\$1 spent on reducing the risks from disasters now will save around \$7 of damages later.**

