

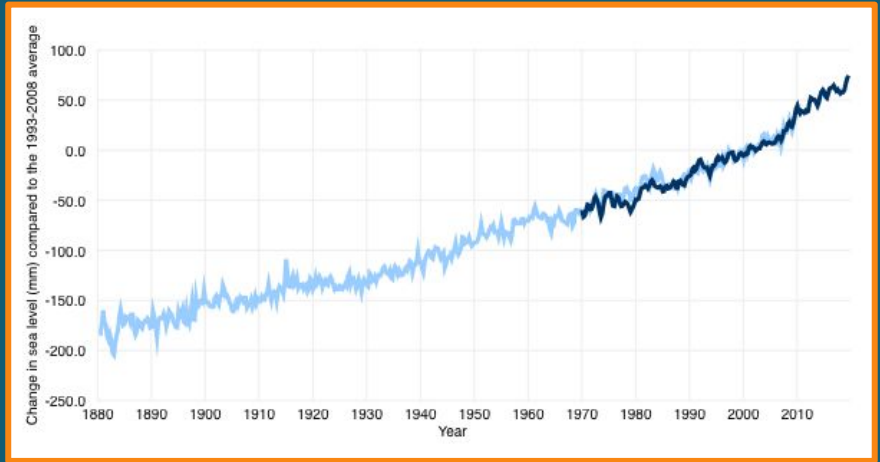


IMPACTS OF CLIMATE CHANGE: COASTAL SEA LEVEL CHANGE

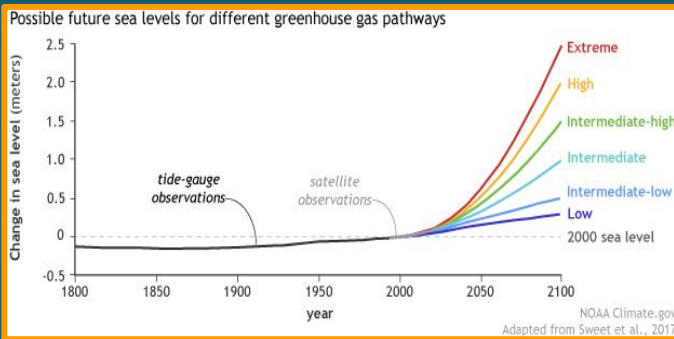


What is coastal sea level change?

- Sea levels have been rising as a result of anthropogenic climate change, such as melting glaciers and ice sheets
- This changes the globe's coastal areas, causing flooding with varying degrees of destruction depending on location



Change in global mean sea level since 1880.¹ The light blue line represents 3-month sea level estimates from Church and White (2011),² whereas the darker line shows data from the University of Hawaii.

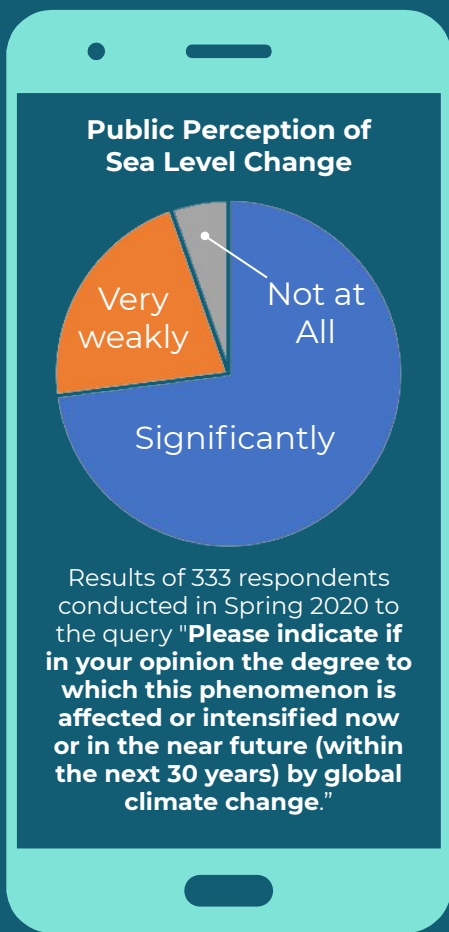


Observed sea level from tide gauges (dark grey) and satellite (light grey) as well as 6 different possible trends for sea level rise from 2000 to 2100.¹

How Current Global Change is Making This Worse

- Increases in CO₂ emissions and other greenhouse gasses are warming the atmosphere, which causes thermal expansion and melting of glaciers
- This pace of sea level rise is accelerating
- The pace in 2006-2015 was 3.6 mm per year, an increase from the 1.4 mm per year rate from most of the 20th century.¹
- Current estimates put sea level rise by 2100 as between .3 meters and 2.5 meters.¹





- As sea level rises, saline groundwater may rise as well leading to contamination of freshwater aquifers making the water unsafe for human consumption
- This will lead to increased treatment cost for water and will make some wells unusable

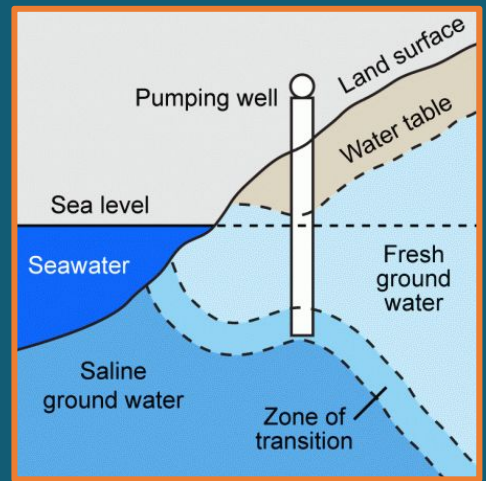


Diagram of saltwater intrusion³

How will this change impact humans &/or wildlife in the near future

- Humans settlements and industries situated along coastlines will be disrupted as those coastlines shift; likewise wildlife will be displaced as their habitats are changed or overtaken by flooding.
- Contamination of coastal aquifers will be a financial burden and create a shortage of freshwater in densely populated areas (as coastal settlements are apt to be).



Image of flood warning⁴

References

1. Lindsey, R. "Climate Change: Global Sea Level." 19 November 2019. [Climate.gov](https://www.climate.gov), *National Oceanic and Atmospheric Administration*. shorturl.at/noDEO.
2. Church, J.A., White, N.J, 2011. Sea-Level Rise from the Late 19th to the Early 21st Century. *Surv Geophys* **32**, 585–602. shorturl.at/afsx8.
3. "Climate Adaptation and Saltwater Intrusion," 29 September 2016. *United States Environmental Protection Agency*, shorturl.at/vBLT9.
4. Clipart of flood warning from <http://www.pngall.com/flood-png/download/16384>