



With Sea Level Rise, existing flooding continues to get worse

What affects local sea level daily, weekly and monthly?

- Tides (including king tides).
- Weather (storms).
- Earthquakes (tsunamis).
- El Nino Nino (well above average in the eastern Pacific).
- La Niña, (lowers the sea level, increased flow of cold deep water to the surface).
- Eddies (circulating water masses).

King Tides

In the Bay Area, the two highest tides of the year occur in winter. They occur naturally and are not caused by climate change. These unusually high tides provide a glimpse of what the future will be like when sea level is higher.



Mill Valley, California

How is sea level measured?

- Tide gauge stations.
- Satellites are used to detect measured changes in sea level over time and the rate of global sea level rise that is accelerating over time.
- Data shows that in the past century, global mean sea level has increased by 7 to 8 inches with human influence the dominant cause of observed atmospheric and oceanic warming.

How does sea level rise affect Marin County?

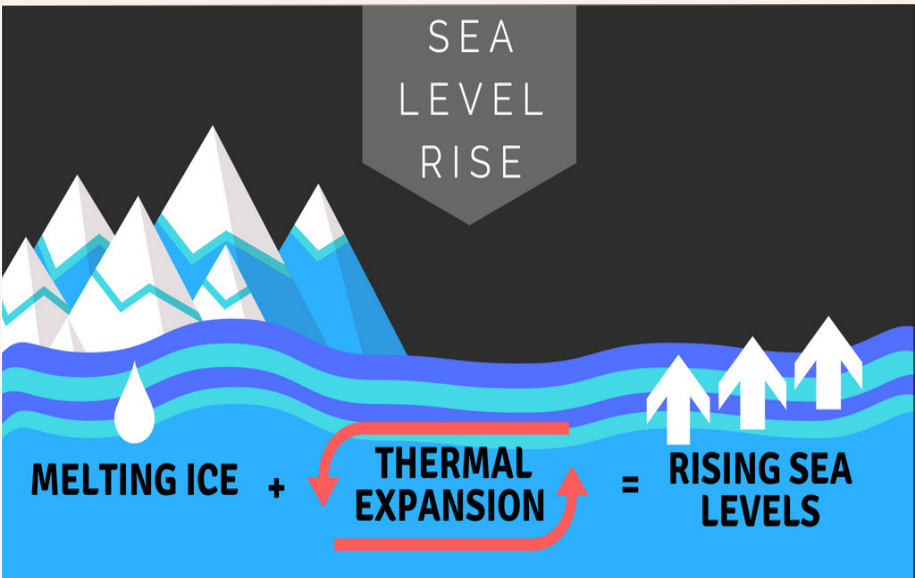
- Coastal flooding (inundation) causing devastating effects on coastal habitats farther inland, it can cause destructive erosion, wetland flooding, aquifer and agricultural soil contamination with salt, and lost habitat for fish, birds, and plants.
- Increased traffic delays due to tidal flooding of major roads and highways. Highways 101, 37, Routes 1 and 131 (Tiburon)
- Homes at risk, approximately 4,400 Marin county homes by 2045.
- Increases risk of coastal erosion.
- Increases impact of storm surge.
- Ruined landscapes, crop lands and public shores and parks.

The 2014 National Climate Assessment used several different assumptions about how oceans and land-based ice will respond to future warming to project global sea level rise. We based projections for sea level rise at our 52 locations on the assessment's intermediate-high scenario.

SOURCES: CLIMATE CENTRAL N.D.; WALSH ET AL. 2014; PARRIS ET AL. 2012.

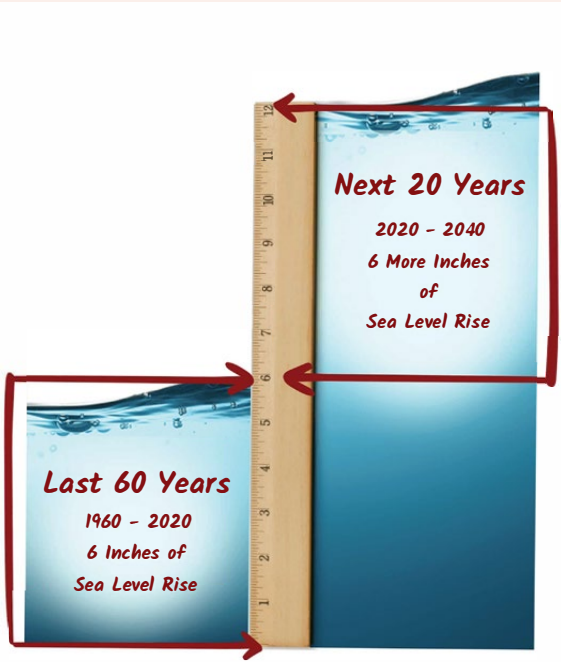
What causes global Sea level Rise?

- Climate Change and global warming.
- Melting ice from alpine glaciers, Greenland, and Antarctica.
- Thermal expansion of ocean water - water expands as global temperature increases.



Future sea level

- Predictions of future sea level rise vary due to ice sheet and glacier dynamics.
- Scientists are projecting as much as a 66-inch increase in sea level along segments of California's coast by the year 2100.



What can be done to minimize future Sea level Rise?

- Curtail our fossil fuel use to reduce carbon emissions that cause global warming.
- Restore natural infrastructure, which can act as a buffer against storms and coastal flooding. barrier lands, oyster and coral reefs, mangroves, seagrass, and salt marshes can work to absorb King Tides and storm surge.

