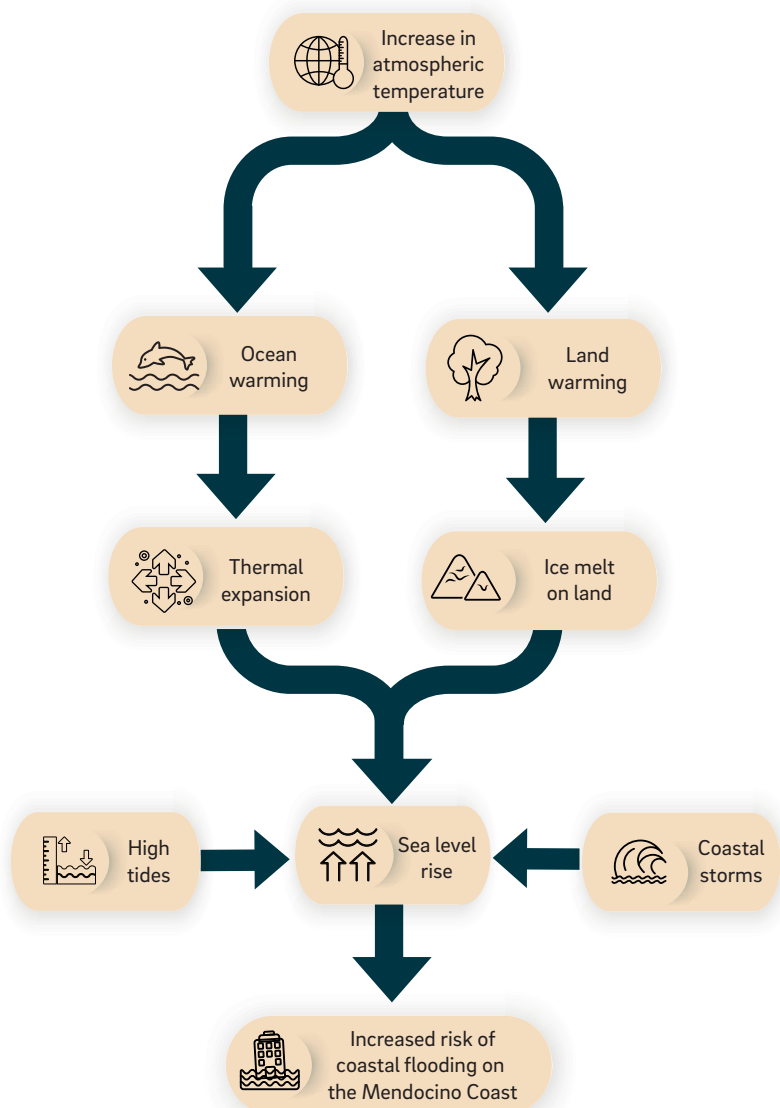


Why are sea levels rising?



As global temperatures increase, sea levels are rising through two major processes: thermal expansion and the melting of ice on land. Thermal expansion refers to the shape, area, and volume of seawater expanding as ocean temperatures increase. Additionally, freshwater runoff from melting mountain glaciers and ice sheets significantly increases the amount of water in the ocean. On the Mendocino Coast, we can expect an increased risk of coastal flooding during high tides and coastal storms as sea levels reach higher levels.

How and where do we measure our local sea levels?

There are 12 NOAA tide gauges in California, and the two closest to Fort Bragg are in Arena Cove to the south and Humboldt Bay to the north. In Humboldt Bay, land at the coast is slowly sinking which contributes to higher sea level rise rates than most other places in California. On the Mendocino Coast, we are not experiencing this level of land subsidence, so the Arena Cove tide gauge is a better fit for both tracking sea levels and understanding potential future sea level rise rates for our region.

What are the future sea level rise projections for Arena Cove?

Approximately 1 foot of sea level rise by 2050 is expected. By 2080 or just 30 years later, sea level rise is likely to double or triple. The worst-case scenario is 6 feet by 2100, but this scenario is based on high future emissions and processes that are still uncertain and ambiguous (such as large, rapid ice sheet loss) – so it may not be a possibility until after 2150.

SLR Scenarios	2050	2080	2100
Intermediate-Low	0.5 ft	1.0 ft	1.4 ft
Intermediate	0.7 ft	1.7 ft	2.9 ft
Intermediate-High	.9 ft	2.8 ft	4.5 ft
High	1.1 ft	3.9 ft	6.4 ft



How does sea level rise relate to coastal flooding?

First, let's define the difference between flooding and inundation. Flooding refers to land that is temporarily underwater. This can occur during large storm events when there is heavy rain, when ocean waves surge onto the shore, or when the ground becomes oversaturated with water. Alternatively, inundation is land that has become permanently submerged underwater.

Sea level rise causes both flooding and inundation. To evaluate future flooding impacts, it is important to analyze sea level rise with other factors, such as high tides and coastal storms. Using maps and statistics, we can assess how far flooding might extend, how deep flooding could be in certain areas, and how frequently flooding may occur. We have already observed that rising sea levels result in an increase in the number of annual flooding days. Developing this type of flooding information will be a component of the City of Fort Bragg and County of Mendocino's sea level rise vulnerability assessments and used to evaluate the potential risks to critical infrastructure, communities and habitats.

What is the Sea Level Rise, Tsunami Hazards, and Erosion Resilience Strategy for Noyo Harbor?

The Sea Level Rise, Tsunami Hazards, and Erosion Resilience Strategy for Noyo Harbor is an opportunity to 1) assess the existing conditions of the harbor, 2) use sea level rise scenarios and coastal hazard tools to conduct vulnerability assessments, 3) develop resilience strategies in collaboration with the community, and 4) draft policy recommendations based on the results and input.

As the study progresses, we will create and share outreach materials, update the community at our monthly meetings (see Event Calendar), and present information at public events. We also plan to host a public workshop to share the initial results from the vulnerability assessments and discuss resilience strategies and solutions.



Does California have sea level rise planning guidance?

The California Ocean Protection Council (OPC) released updated statewide guidance on sea level rise and coastal hazard planning for state and local decision makers in June 2024. These reports are based on the best available science and updated approximately every 5 years. The 2024 State of California Sea Level Rise Guidance has been incorporated into the City of Fort Bragg's Sea Level Rise, Tsunami Hazards, and Erosion Resilience Strategy for Noyo Harbor.