

Adapting to Rising Tides

Climate Impact Statements

Five potential climate impacts associated with sea level rise and storm events were considered in the Adapting to Rising Tides subregional project. These potential impacts were used to assess how climate change may affect the communities, infrastructure, economy and ecosystems in the project area.

Potential Climate Impact	Potential consequences of the impact on the four assessment frames (society and equity, the environment, economy, and governance)
<p>More frequent floods: extreme high Bay water levels will occur more often leading to more frequent flooding of flood-prone areas</p>	<ul style="list-style-type: none"> • Damage and disruptions to neighborhoods and community services and facilities including emergency response, transportation, water, energy, and communications assets • Increased cost of repair and maintenance for flood protection channels and storm drains that are overwhelmed during flood events • Overwhelmed wastewater and stormwater treatment systems causing harm to water quality, and environmental and public health • Increased mobilization of pollutants if contaminated lands (such as closed landfills) are subjected to prolonged inundation • Changes to sediment transport and deposition that affect tidal wetlands' ability to keep up with sea level rise • Disproportionate burdens during and after flood events on community members with certain characteristics that increase their vulnerability • Lost wages and lower productivity during recovery
<p>More extensive, longer-duration flooding: higher Bay water levels especially during storm events will flood larger areas for longer periods of time</p>	
<p>Permanent inundation: higher Bay water levels and shifts in the tidal range will cause areas not currently exposed to tidal inundation to experience frequent or permanent inundation</p>	<ul style="list-style-type: none"> • Damage, closure, and relocation of private and public infrastructure • Damage to shoreline protection structures that requires replacement, repair and/or more frequent maintenance • Disruption and loss of access to key community services and facilities • Disproportionate burdens on community members with certain characteristics (e.g., low income renters and homeowners) caused by repair, retrofits, or relocation, and higher insurance, goods, and services costs • Loss of tidal wetlands that cannot keep up or migrate inland and reduced ecosystem service benefits (water quality, habitat, flood risk reduction) • Loss of trails, beaches, vistas, environmental education and other shoreline recreation opportunities • Greater demands on agencies to plan for and manage infrastructure and resources in a coordinated, cross-jurisdictional manner
<p>Increased shoreline erosion over-topping: higher Bay water levels will change tidal and wave energy, causing increased shoreline erosion and potential for levees and other types of shoreline protection to be overtopped</p>	
<p>Elevated groundwater and salinity intrusion: as the Bay rises, groundwater levels and the salinity intrusion of inland areas will increase</p>	<ul style="list-style-type: none"> • Groundwater intrusion into underground infrastructure and resulting effects on sensitive mechanical and electrical components • Areas that are currently gravity drained will require pumping, and areas already pumped require additional pumping for longer durations • Decreased seismic stability in areas of high potential liquefaction • Groundwater intrusion into contaminated sites re/mobilizes contaminants • Saltwater intrusion reduces fresh water supply from coastal aquifers