

# Adapting to Rising Tides



The **Adapting to Rising Tides (ART)** assessment of vulnerability and risk of San Francisco Bay Area shoreline and community resources to sea level rise and storm events has revealed a number of overarching vulnerabilities. These fall into five themes: population characteristics, certain land uses, emergency preparedness and response, information gaps and networked infrastructure.

## ENVIRONMENT

### Regional Information Gap

There are significant gaps in the quality and availability of information necessary to improve our understanding of vulnerability and risk within the ART project area, and in the region as a whole.



These gaps include:

- An insufficient understanding of the physical dimensions of sea level rise and storm events, including how groundwater and salinity levels will change
- Limitations in the data used to understand current flood risk
- A very limited understanding of how dynamic natural shoreline systems will respond to changing conditions

Decisions about marsh restoration are an example of where these gaps affect adaptation planning. As sea level rises, marshes have three options: build up by trapping sediment, move to higher ground, or die. Predicting which path a marsh will take and when requires understanding a number of complex processes at different spatial and temporal scales. The lack of a coordinated regional marsh monitoring and research framework to support development of this understanding is a barrier to improving restoration approaches for changing conditions.

### Example Adaptation Actions

**Establish and support a regional research agenda** to advance the understanding of how marshes will respond to accelerating sea level rise.

**Research and test restoration and management actions** that will improve marsh resilience.

**Develop a decision-making framework for selecting resilient, multi-objective shoreline adaptation responses** given economic, environmental, and social equity trade-offs.

