

# Adaptive Management

**Adaptive Management** is essential to ensure the resilience of projects along the San Francisco Bay shoreline. BCDC can require projects, including ecosystem projects, to have adaptive management plans when a risk-based assessment determines the site is vulnerable to current and future flooding. However, the policies currently lack of clear mechanisms regarding how to design projects to be adaptive to rising sea levels. Difficult issues include identifying thresholds for taking future action and how to design monitoring and enforcement approaches in effective and efficient ways to support adaptive management.



## ADAPTIVE MANAGEMENT IS COMPLEX

The magnitude and timing of future climate change impacts can make planning for rising sea levels complex. Adaptive management plans can help projects address the uncertainty inherent in planning for future sea levels by utilizing scenario planning, environmental criteria thresholds (e.g. remove facilities or raise shoreline protection when sea level reaches a certain height), and project-specific climate adaptation strategies (e.g. making bayfront recreational facilities moveable or able to withstand periodic flooding).

### Issues

- Proposed projects can no longer be designed for a static, unchanging environment.
- The Commission requires an adaptive management plan for projects that are likely to "remain in place longer than mid-century". Experience with developing and implementing such plans is limited.
- Adaptive management requires monitoring and plans to adapt to a range of future conditions.
- Adaptation responses can create significant impacts on adjacent properties or communities (e.g. increased erosion and flooding) and unprotected properties can undermine adaptive strategies.
- Ecosystem projects may not have landward transition space available to expand with rising waters.
- Adaptive strategies that are not approved by the Commission will need additional approval when thresholds are reached.

### Potential Solutions

- Development of clear definitions and guidance for adaptive management plan development would assist project proponents and the Commission in project review.
- Require risk assessments and adaptive management plans to consider the potential flood and erosion impacts to adjoining properties and include mid and long-term measures to reduce them.
- Identify thresholds for adaptation measure implementation within adaptive management plans.
- Ensure projects on and near contaminated lands have an adaptive management plan that is protective of the Bay and human health for both the current and future conditions of the site.
- Explore funding mechanisms for adaptive management, such as a regional program that monitors sea level rise and flood events around the Bay shoreline.

### Pros and Cons

- A guidance document would assist applicants in understanding and assessing risk; and develop effective adaptive management actions.
- Incorporating thresholds for adaptation responses can be implemented now but requires a change in the Commission's approach to permit conditions, monitoring and enforcement and requires ongoing engagement from both BCDC and project proponents.
- BCDC's current policies, guidance and adaptive management requirements are limited due to both jurisdiction and experience with this type of approach to project planning, particularly in the built environment. Addressing these limitations will require amendments to the Bay Plan and may require amending the McAteer-Petris Act.



Photo Credit Joe Klocek



### Discussion Questions

- Is this a policy issue that BCDC should prioritize over other issues?
- Which of these actions do you support BCDC in pursuing in regards to adaptive management?
- Considering this topic only, what do you envision as a positive outcome for the region?