

# **Ocean and Coastal Resources Climate Change Adaptation Strategy**

**DRAFT OUTLINE -- For Public Comment**

**Do Not Cite**

**This draft outline is being released to gather public input on the range of ideas that the Ocean and Coastal working group could consider for a statewide climate change adaptation strategy.**

**The working group will consider this public input as we create a revised draft strategy that will also be available for public comment in the future. Eventually, what is developed through this open and public process will become part of the Resources Agency's statewide climate adaptation strategy. For more information about the statewide plan, please see <http://www.climatechange.ca.gov/adaptation/index.html>.**

## **Vision**

The Ocean and Coastal Resources Climate Change Adaptation Strategy recommends proactive steps to create a future where ocean and coastal resources, as well as the communities along California’s coast and San Francisco Bay, can evolve to changing climatic conditions. The strategy aims to achieve this vision in a way that protects the quality of the natural environment and promotes economic prosperity for the benefit of all Californians.

## **Scope**

The geographic focus of this strategy extends from California’s ocean environment to the onshore areas impacted by the sea, both along the open coast and in coastal bays, lagoons, estuaries and wetlands. This boundary is not fixed: in some cases, inland areas that influence the coast or are influenced by coastal processes (e.g., sediment sources from coastal watersheds) are included in the scope.

## **Purpose of the Document**

This strategy is meant to provide guidance to the numerous organization and public entities that manage geographical areas and resources discussed within this document. Many difficult management decisions are needed to adapt to future climate change impacts; this document is intended to be a strategy to lay the groundwork for future discussions and planning actions by these organizations. Furthermore, this strategy will set the stage for the legal and regulatory changes that are likely to be necessary to implement adaptation approaches.

## **Guiding Principles**

- 1) Protect public health and safety and critical infrastructure.
- 2) Promote sustainable communities, prosperous coastal and ocean-related economies, coastal recreation and tourism, and resilient development.
- 3) Promote resilience in ocean and coastal ecosystem management.
- 4) Acknowledge that significant climate-caused changes will occur.

## **Components of the Strategy**

- 1) A **vulnerability assessment** will establish the type and extent of potential climate changes such as sea level rise, storm surges, and changing ocean conditions and how these changes will impact infrastructure and development, human populations, economy, and natural habitats and species.
- 2) **Coastal adaptation strategies** (both overarching and specific) will address these impacts. As much as possible, each strategy will be accompanied by case studies that elucidate that strategy and guidance on how it should be implemented (i.e., potential changes to policies or legislation).
- 3) **Next steps for adaptation implementation** include identifying needed research/data/products; developing an iterative process for updating strategies based on new information; formulating guidance for how to implement these strategies at a local level; creating opportunities for data dissemination and decision support; determining needed legislative changes; and establishing mechanisms for improved coordination between state agencies and with federal agencies, other states, local governments, coastal tourism groups, private investors, and the insurance industry.

## **VULNERABILITY ASSESSMENT**

The vulnerability assessment will include a discussion of (1) the possible climate and sea level rise scenarios based on the state-of-the science and (2) a summary of the known impacts to California resources and people based on these scenarios. Below is the current outline that we are considering for this discussion.

### **Scenarios**

#### ***Sea Level Rise, Inundation, and Coastal Storms***

Sea level rise and erosion risks

Coastal storms and extreme weather events

#### ***Changing Ocean and Coastal Conditions***

Salinity changes (especially in estuaries)

Temperature changes (air and sea)

Changes to ocean currents, upwelling, and stratification

Ocean acidification

### **Impacts**

#### ***Effects of Sea Level Rise, Inundation, and Coastal Storms - Impacts to the Built Environment***

Infrastructure at risk

Impacts to coastal populations

Economic impacts

#### ***Effects of Changing Ocean and Coastal Conditions – Impacts to the Natural Environment***

Impacts to coastal ecosystems – beaches, wetlands, intertidal and subtidal habitats

Changes in protected species populations (endangered species, marine mammals, etc.)  
commercially significant species (fisheries), marine ecosystems and food webs, and  
introduction of new invasive species

Economic impacts

## **COASTAL ADAPTATION STRATEGIES**

In future drafts, several specific strategies will be included under each overarching strategy. The outline, below, provides questions to initiate discussion about what these specific strategies might include.

### *Planning for Sea Level Rise, Inundation, and Coastal Storms*

**Overarching Strategy #1. Provide guidelines for assessing critical existing infrastructure and development and determining when and what action is needed to reduce vulnerability.**

*For areas where protection or retrofit is appropriate:*

What innovative approaches exist to protect or rebuild infrastructure and development so that it is less vulnerable to coastal hazards?

*For areas where alternative strategies can be used:*

What innovative approaches exist to incentivize or regulate moving infrastructure and development away from coastal hazards?

**Overarching Strategy #2. Ensure new development is properly sited and designed.**

What new or existing approaches can be employed to direct future development away from areas subject to coastal hazards? Can new buildings and infrastructure be built or sited in a way that is resistant to coastal hazards?

### *Planning for Changing Ocean Conditions*

**Overarching Strategy #3. Ensure that critical coastal and ocean habitats and recreational areas are protected and maintained.**

How do we plan for and execute habitat protection that accounts for future changes?

**Overarching Strategy #4. Formulate management approaches that adapt as certain climate-induced thresholds are reached.**

What management decision criteria could be changed so that new actions are taken once certain climate impacts are detected?

### *Planning for a Changing Political Climate*

**Overarching Strategy #5. Implement policy changes at the local, regional, and national level.**

What local planning documents or ordinances need to change to adapt to coastal impacts?  
What federal legislation might be changed to promote adaptation at the state level?

## **NEXT STEPS**

Identify research/data/products necessary for planning and implementing adaptation measures.

Provide a framework for:

- updating strategies based on new information
- creating guidance about how to implement these strategies on a local scale
- creating opportunities for data dissemination and decision support
- determining needed legislative changes

Develop mechanisms for improved coordination between state agencies and with federal agencies, other states, private investors, local agencies, and the insurance industry.

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