

# ITEM W6C: BRIEFING ON REVISED DRAFT SEA LEVEL RISE POLICY GUIDANCE



Oceanside, CA | May 2009 | CA King Tides Initiative | Dan Jarvis





Oceanside, CA | May 2009

CA King Tides Initiative | Dan Jarvis



Pasture near Liscom Slough, Arcata CA | Dec 2012

CA King Tides Initiative | Humboldt BoyKeepers



Bolinas, Marin County | Dec 2011

CA King Tides Initiative | rnmoo



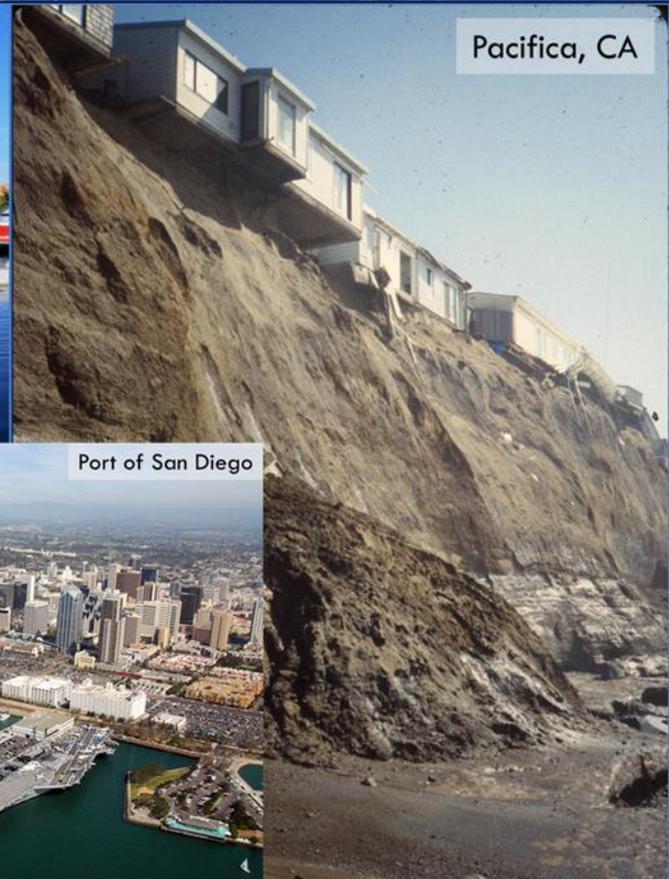
Ocean Beach, San Francisco | Jan 2011

Bay Area King Tides | Flickr user GGNRA\_Laura

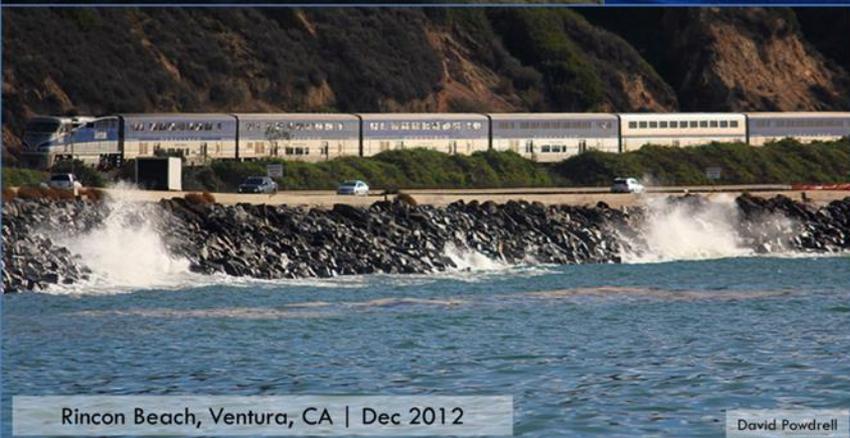


Sunset Beach, CA | Dec 2012

CA King Tides Initiative | Mario Fernandez



Pacifica, CA



Rincon Beach, Ventura, CA | Dec 2012

David Powdrell



Port of San Diego

<http://commons.wikimedia.org>

# STATEWIDE CONTEXT OF SEA LEVEL RISE PLANNING

**EO S-13-08:** Schwarzenegger; SLR adaptation

**EO B-30-15:** Brown; mitigation & adaptation

**AB 2516:** Gordon; SLR Planning Database



## CALIFORNIA OCEAN PROTECTION COUNCIL

John Laird, Secretary for Natural Resources, Council Chair  
Gavin Newsom, Lieutenant Governor, State Lands Commission Chair  
Linda Adams, Secretary for Environmental Protection  
Susan Golding, Public Member  
Geraldine Knatz, Public Member  
Fran Pavley, State Senator  
Toni Atkins, State Assemblymember

## Resolution of the California Ocean Protection Council on Sea-Level Rise Adopted on March 11, 2011

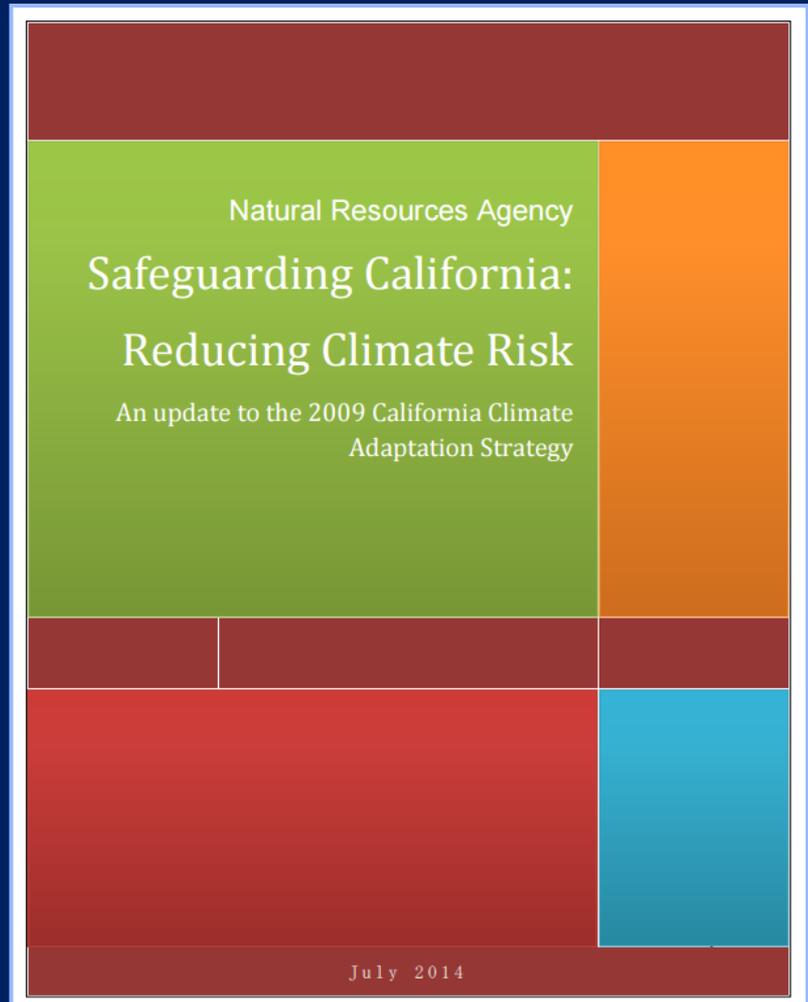
### STATE OF CALIFORNIA SEA-LEVEL RISE GUIDANCE DOCUMENT

Developed by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT),  
with science support provided by the Ocean Protection Council's Science Advisory Team and the  
California Ocean Science Trust

March 2013 update

## Resolution of the California Ocean Protection Council on Implementation of the Safeguarding California Plan for Reducing Climate Risks

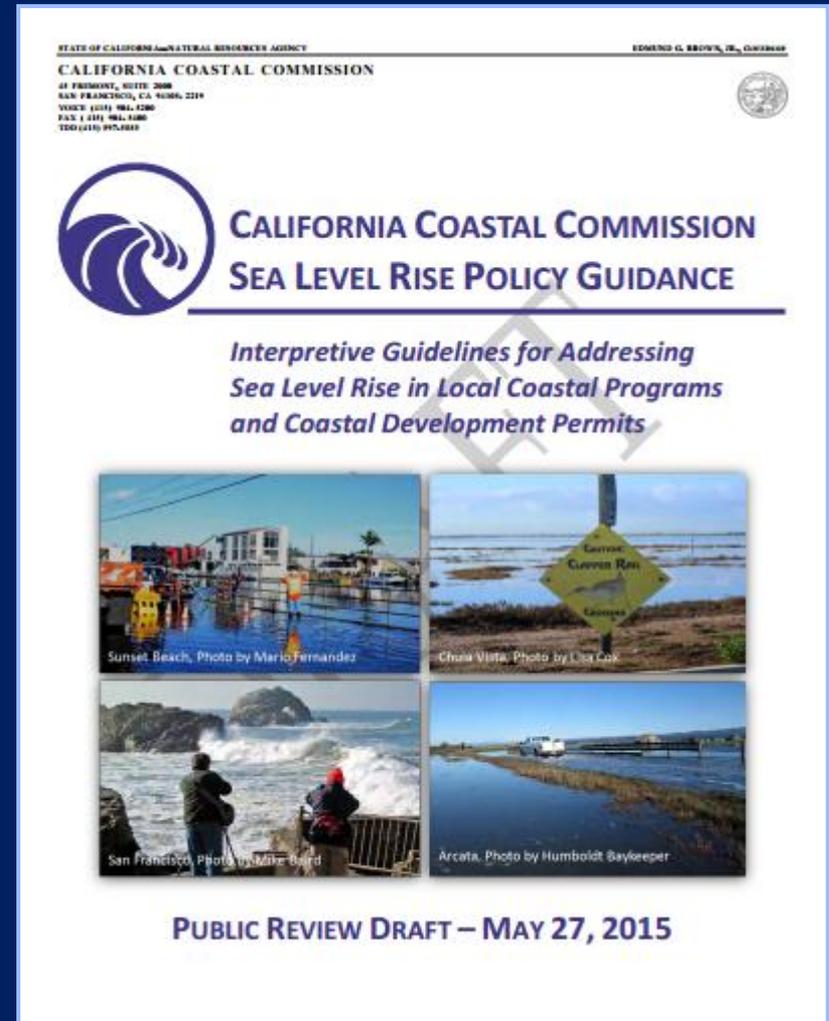
Adopted on August 27, 2014



**+ See Guidance Introduction**

# SEA LEVEL RISE POLICY GUIDANCE

- Strategic Plan Objective 3.1.1
- Draft document released October 14, 2013
- 120 day public comment period closed February 14, 2014
- Received >100 comment letters with ~850 individual comments
- Presentations at the December 2013 and January 2014 Commission Hearings



# ABOUT THE DOCUMENT

## This document IS:

Guidance

Dynamic

Multi-purpose for multiple audiences

A menu of options

## This document is NOT:

Regulations

Static

Meant to be read cover-to-cover

A checklist

# ABOUT THIS PRESENTATION

## Chapters of Interest

2. Guiding Principles
3. Sea Level Rise Science
4. Consequences of SLR
5. Addressing SLR in LCPs
6. Addressing SLR in CDPs
7. Adaptation Strategies
8. Legal Context
9. Next Steps

## Appendices

- A. Sea Level Rise Science
- B. Local Hazard Conditions
- C. Resources
- D. LCP Amendment
- E. Funding Opportunities
- F. Coastal Act Policies
- G. CCC Contact Info

## Public Comments & Revisions

### Comments Resulting in Changes

- Sea Level Rise Science
- Adaptation Strategies
- Legal Context

### Comments Related to NEXT STEPS

# ABOUT THE DOCUMENT

## GUIDING PRINCIPLES



### Chapter 2: Principles for Addressing Sea Level Rise

---

Use science to  
guide decisions

Minimize coastal hazards  
through planning and  
development standards

Maximize protection of  
public access, recreation, and  
sensitive coastal resources

Maximize agency coordination  
and public participation

# ABOUT THE DOCUMENT

## CHAPTERS OF INTEREST



### Chapters 3 and 4:

Sea Level Rise Science

Consequences of SLR for  
Communities, Coastal Resources,  
and Development

Time Period *	North of Cape Mendocino	South of Cape Mendocino
by 2030	<b>-2 – 9 in</b> (-4 – +23 cm)	<b>2 – 12 in</b> (4 – 30 cm)
by 2050	<b>-1 – 19 in</b> (-3 – +48 cm)	<b>5 – 24 in</b> (12 – 61 cm)
by 2100	<b>4 – 56 in</b> (10 – 143 cm)	<b>17 – 66 in</b> (42 – 167 cm)

\* with year 2000 as a baseline

# ABOUT THE DOCUMENT

## CHAPTERS OF INTEREST

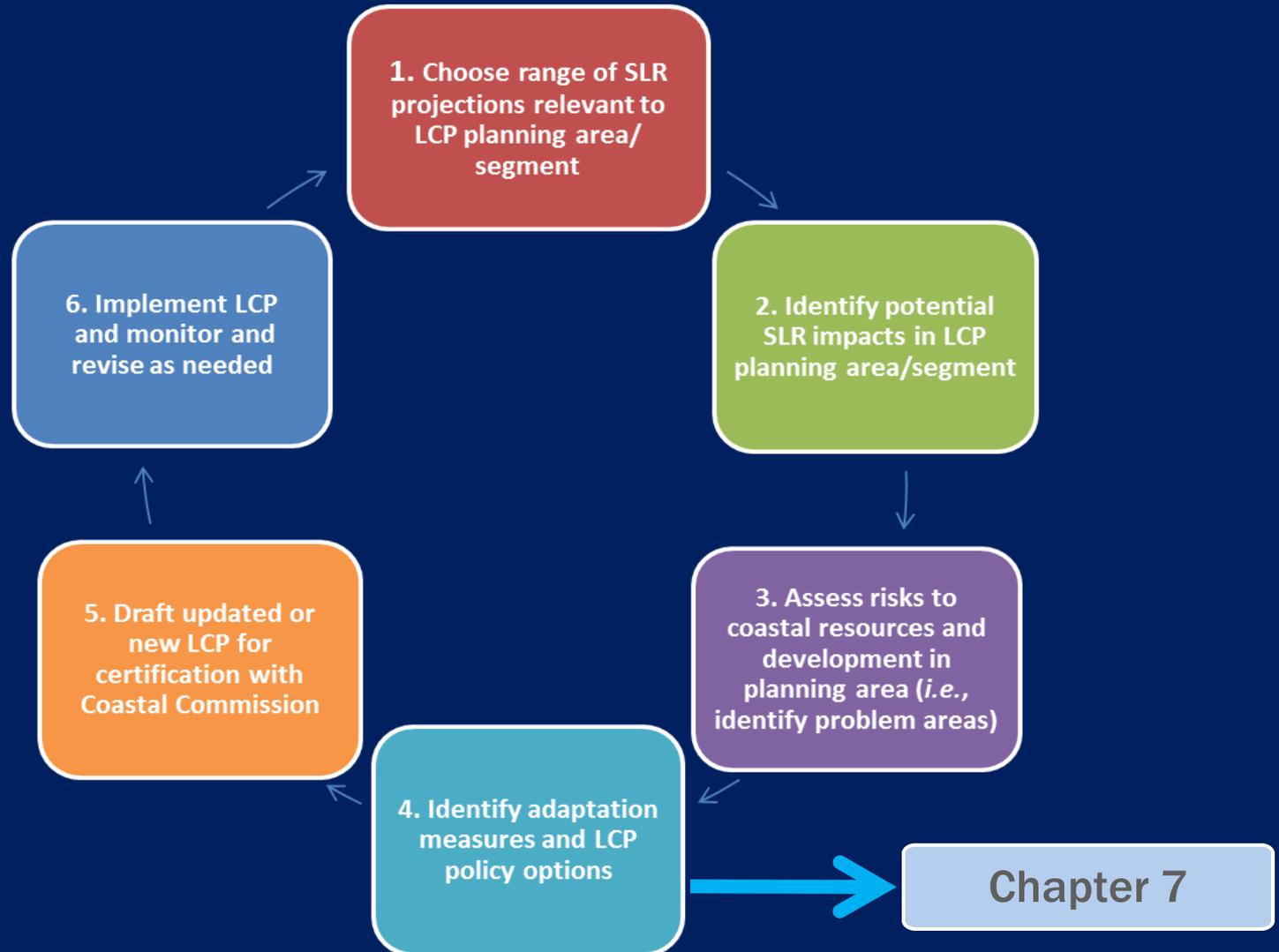


### Chapter 5:

Addressing Sea Level Rise in  
Local Coastal Programs



# ADDRESSING SLR IN LCPS



# ABOUT THE DOCUMENT

## CHAPTERS OF INTEREST



### Chapter 6:

Addressing Sea Level Rise in Coastal Development Permits

Chapter 7

1. Establish the projected sea level rise range for the proposed project

2. Determine how sea level rise impacts may constrain the project site

3. Determine how the project may impact coastal resources over time, considering sea level rise

4. Identify project alternatives to both avoid resource impacts and minimize risks to the project

5. Finalize project design and submit permit application

# ABOUT THE DOCUMENT

## CHAPTERS OF INTEREST



### Chapters 7 and 8:

Adaptation Strategies

Legal Context of  
Adaptation Planning



Photo depicting dune restoration at Surfer's Point, Ventura. (Photograph courtesy of Surfrider Foundation)

# ABOUT THE DOCUMENT

## CHAPTERS OF INTEREST



### Chapter 9:

Next Steps



Frisbee in the Dunes, Oceano Dunes, © Randy Krauch  
2013 Coastal Commission Amateur Photography Contest

# ABOUT THE DOCUMENT



## Appendices

**A. Sea Level Rise Science and Projections for Future Change**

**B. Developing Local Hazard Conditions**

**C. Resources for Addressing SLR**

**D. General LCP Amendment Process**

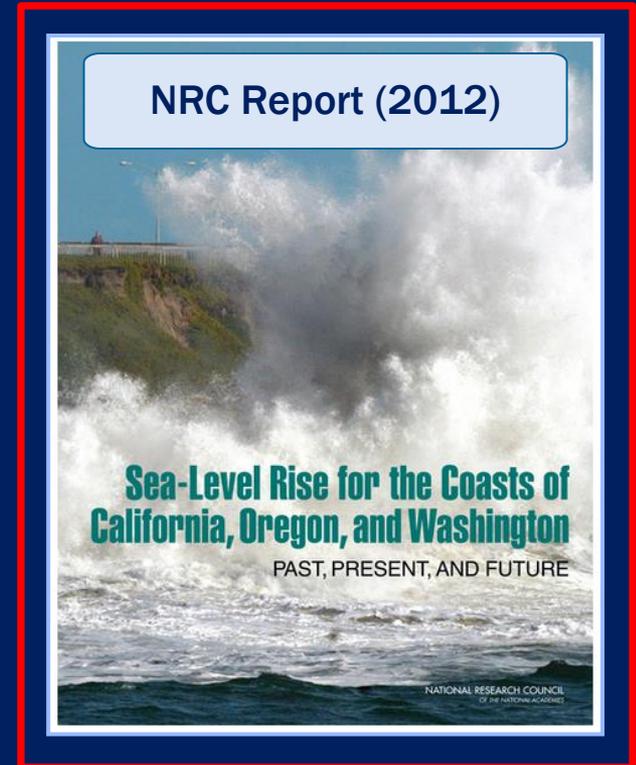
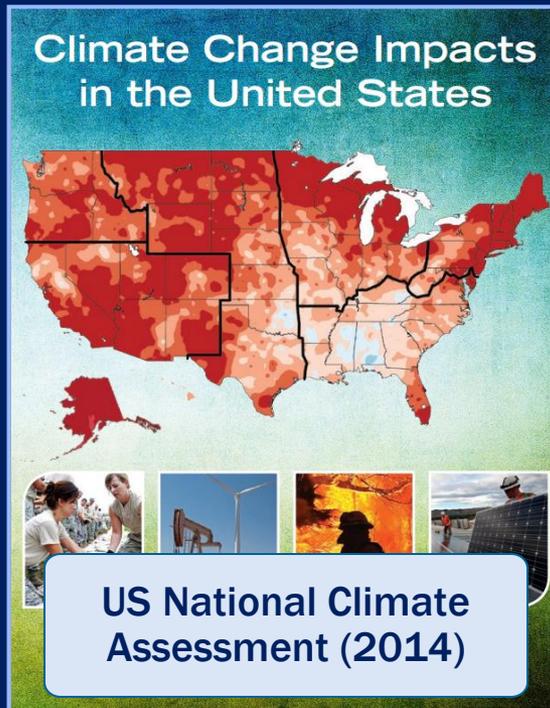
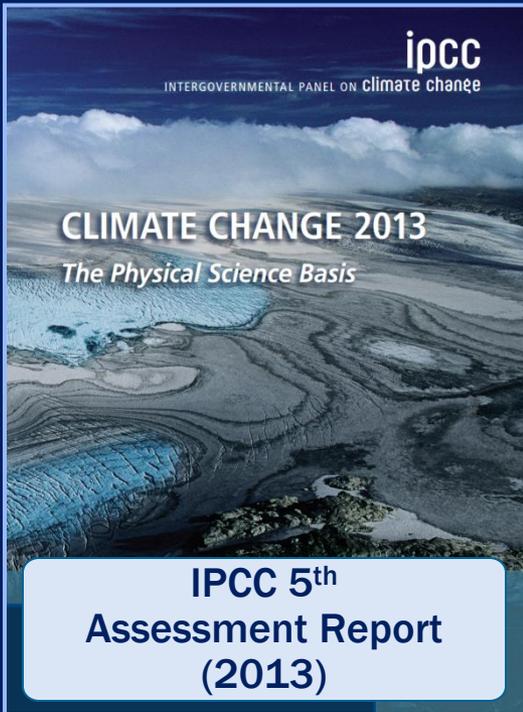
**E. Funding Opportunities for LCP Planning and Implementation**

**F. Coastal Act Policies Relevant to SLR and Coastal Hazards**

**G. Coastal Commission Contact Information**

# ABOUT THE DOCUMENT

## APPENDICES



### Appendix A:

### Sea Level Rise Science and Projections for Future Change

California King Tides Initiative



Highway 101 at Rincon Beach in Santa Barbara

California King Tides Initiative



Pasture flooding near Liscom Pasture, Arcata



Bluff erosion in Pacifica

Photo by L Ewing

Sunset Beach, CA



California King Tides Initiative



# Appendix B:

Developing Local Hazard Conditions

**Humboldt Bay Shoreline Inventory, Mapping, and SLR Vulnerability Assessment**

**Ocean Beach Master Plan**

**City of Santa Cruz Climate Change Vulnerability Assessment**

**Monterey Bay SLR Vulnerability Study**

**Developing Climate Adaptation Strategies for SLO County**

**Santa Barbara SLR Vulnerability Study**

**Adapt LA**

**San Diego SLR Adaptation Strategy**

**Cal-Adapt**

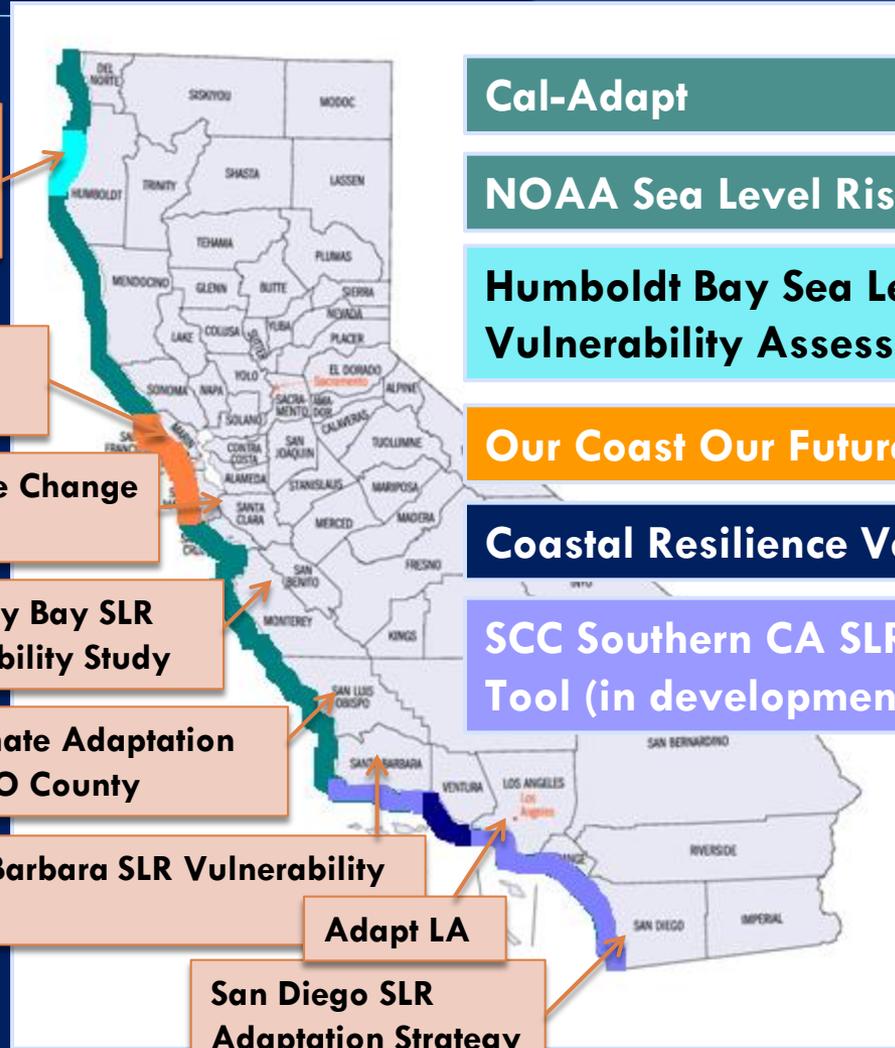
**NOAA Sea Level Rise Viewer**

**Humboldt Bay Sea Level Rise Vulnerability Assessment**

**Our Coast Our Future**

**Coastal Resilience Ventura**

**SCC Southern CA SLR Map Tool (in development)**



## Appendix C:

**Sea Level Rise Science and Projections for Future Change**

# ABOUT THE DOCUMENT

## APPENDICES



### Appendices D-G:

D. General LCP Amendment Process

E. Funding Opportunities for LCP Planning and Implementation

F. Coastal Act Policies Relevant to SLR and Coastal Hazards

G. Coastal Commission Contact Information



Figure G-1. Location of Coastal Commission offices

# PUBLIC COMMENTS

Comments resulting  
in changes

Comments related  
to Next Steps

# PUBLIC COMMENTS

**Sea level rise  
projections**

**Adaptation strategies**

**Legal context and  
policy framework**

**Comments related  
to Next Steps**

# PUBLIC COMMENTS

## SEA LEVEL RISE PROJECTIONS

What **projections** should we use?

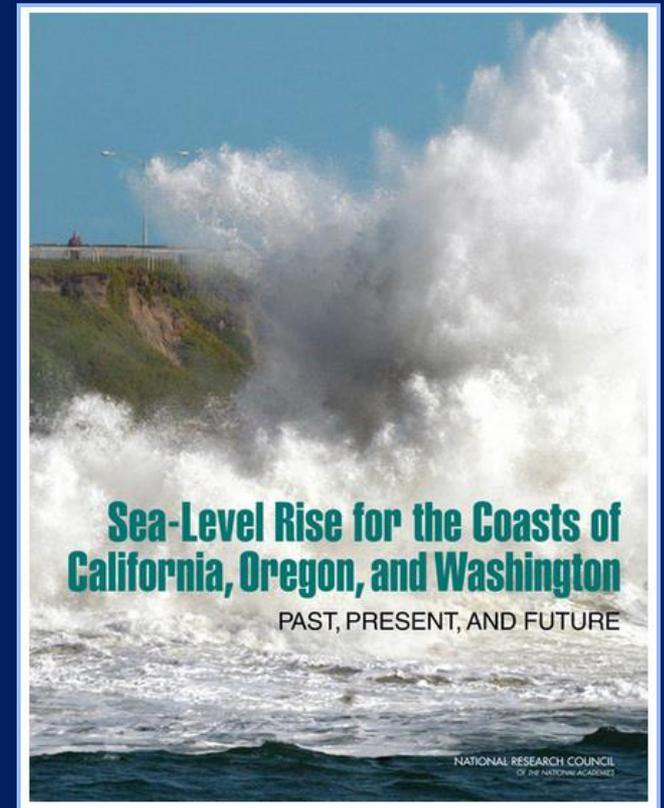
How should we address **uncertainty** when doing vulnerability assessments?

What **tools and methodologies** do you recommend using?

# REVISIONS

## SEA LEVEL RISE PROJECTIONS

In general, the Coastal Commission recommends using **best available science (currently the 2012 NRC report)** to identify a range of sea level rise scenarios including the **HIGH projection, LOW projection, and one or more INTERMEDIATE projections**



# REVISIONS

## SEA LEVEL RISE PROJECTIONS

### **Scenario-based analysis**

includes choosing several possible sea level rise amounts as a starting point to evaluate impacts to coastal resources and potential risks to development over time.

**Helps to address uncertainty in sea level projections by:**

Revealing the range of possible consequences of sea level rise

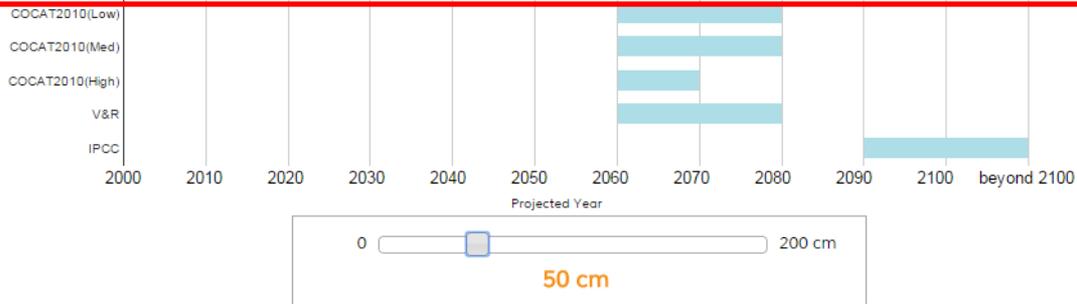
Revealing the tipping points for if/when sea level rise will impact an area

# 1. Identify range of SLR amounts, then relate to likely time period(s) of occurrence

## When is a projection likely to occur?

Move the slider control below the graph left and right to see how different climate experts projections of when sea level rise will occur compare to one another.

**NRC 2012**



get started

clear

recenter

### 1) Choose a topic.

**Flooding** shows the inundation due to SLR, waves, and storm surge.

Flooding

Waves

Current

Duration

Flood Potential

[What do the Topics represent?](#)

Compare Flooding Scenarios

### 2) Choose an Amount of Sea Level Rise (cm).

0	25	50	75	100	125
150	175	200	500	<a href="#">[Use feet]</a>	

[What Sea Level Rise scenario should I use?](#)

### 3) Choose an Event

Choose  
Storm Scenario Frequency

None Annual 20 year 100 year

Or Choose  
King Tide Scenario

King Tide

[What are Storm Scenarios?](#)

[What is a King Tide scenario?](#)

You are currently in 

### Flood and Sea Level Rise

Choose a Region Selected Region: Ve

 Combined Erosion Risk Combined Hazards

#### 2. Select the time and amount of sea level rise

Year

Current 2030 2060 2100

#### Sea Level Rise Scenario

Low Medium High

Layer Properties:

Opaque Transparent

[Download Data](#)[View Technical Report](#)[View Overview](#)

2. Choose applicable years, then identify **HIGH, INTERMEDIATE,** and **LOW SLR** scenarios

Map Layers

Community Planning

Future Habitat

Economic App

Flood and Sea Level Rise

# PUBLIC COMMENTS

## ADAPTATION STRATEGIES

Provide detail on **which adaptation strategies** should be used in **specific areas**

Provide **examples** of adaptation strategies currently in use

Provide more emphasis on the benefits of **intact habitats** and **living shorelines**

Explain how adaptation options affect **re-development** efforts

Strategies for **flexible, long-term adaptation**

# REVISIONS

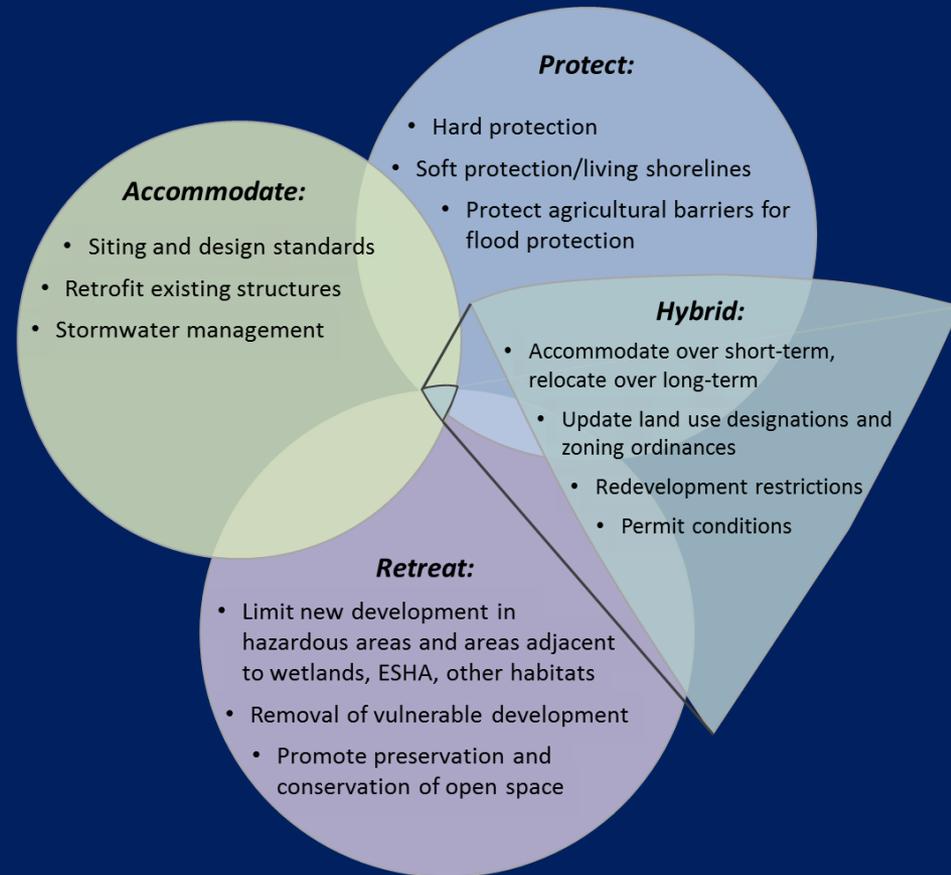
## ADAPTATION STRATEGIES

### Choose Adaptation Strategies based on:

Applicable Coastal Act and LCP requirements  
(and other relevant laws and policies)

Specific risks and vulnerabilities  
of the region or project site

Consideration of local conditions



# REVISIONS

## ADAPTATION STRATEGIES

Coastal Development and Hazards

Public Access and Recreation

Coastal Habitats, ESHA, & Wetlands

Agricultural Resources

Water Quality and Supply

Archaeological and  
Paleontological Resources

Scenic and Visual Resources

### A. Coastal Development and Hazards

The Coastal Act requires that new development be sited and designed to be safe from hazards and to not adversely impact coastal resources (Coastal Act Sections 30235 and 30253). The main goals that relate to hazards and coastal development are:

- Update land use designations, zoning maps, and ordinances to account for changing hazard zones
- Include sea level rise in hazard analyses and policies
- Plan and locate new development to be safe from hazards, not require protection over its entire lifespan, and be protective of coastal resources

**Goal:** Plan and locate new development to be safe from hazards, not require protection over its entire lifespan, and be protective of coastal resources

**A.4 Limit new development in hazardous areas:** Restrict or limit construction of new development in zones or overlay areas that have been identified or designated as hazardous areas to avoid or minimize impacts to coastal resources and property from sea level rise impacts.

**A.5 Cluster development away from hazard areas:** Concentrate development away from hazardous areas. Update any existing policies that cluster development to reflect additional hazard zones due to sea level rise.

**A.5a Concentration of development/smart growth:** Require development to concentrate in areas that can accommodate it without significant adverse effects on coastal resources. This strategy is applicable for community wide planning through an LCP, but may also apply to CDPs for subdivisions or for larger developments involving large or multiple lots.

**A.5b Transfer of Development Rights programs (TDR):** Restrict development in one area ("sending area") and allow for the transfer of development rights to another area more appropriate for intense use ("receiving area"). LCPs can establish policies to implement a TDR program to restrict development in areas vulnerable to sea level rise and allow for transfer of development rights to parcels with less vulnerability to hazards. A TDR program can encourage the relocation of development away from at-risk locations, and may be used in combination with

# PUBLIC COMMENTS

## LEGAL CONTEXT AND POLICY FRAMEWORK

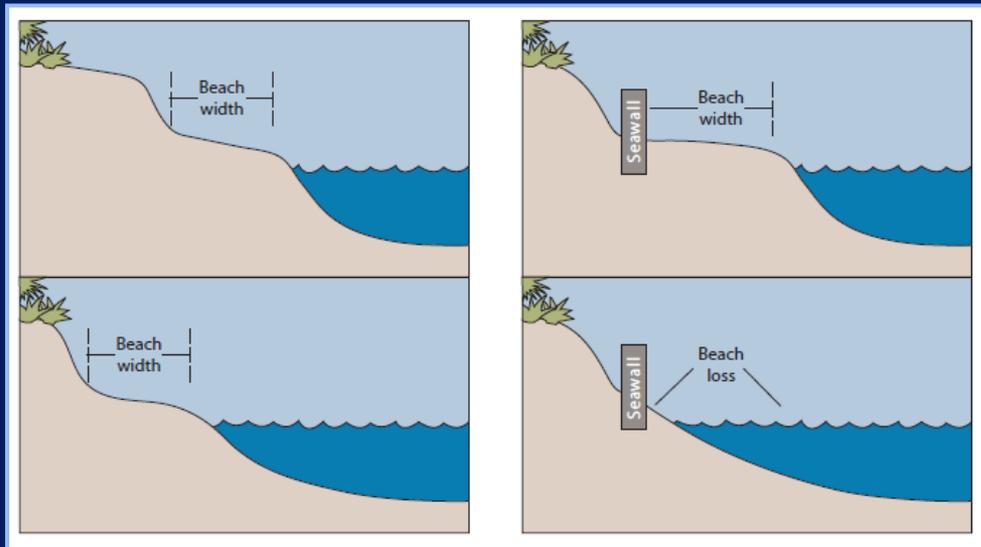
What is the general **legal framework** that supports these recommendations?

What is the **case history** for adaptation?

How does this fit in with **other agency efforts**? What about **other states**?

# REVISIONS

## LEGAL CONTEXT OF ADAPTATION PLANNING



### Legal context for addressing:

Seawalls and other shoreline protective devices

The public trust boundary

Potential private property takings issues

# REVISIONS

 Intro Updates to State and Federal actions

Updates to best available science  
 Ch. 3 **NEW** section on storms, extreme events, abrupt change  
**NEW** section on scenario-based planning

 Ch. 4 **NEW** section on environmental justice

 Ch. 7 **NEW** chapter on adaptation strategies

 Ch. 8 **NEW** chapter on the legal context of adaptation planning

+ Edits throughout for clarification

# PUBLIC COMMENTS

**Sea level rise  
projections**

**Adaptation strategies**

**Legal context and  
policy framework**

**Comments related  
to Next Steps**

# PUBLIC COMMENTS

Sea level rise  
projections

Relationship to CCC  
policies and practices

Adaptation strategies

How to treat specific  
coastal assets

Legal context and  
policy framework

Additional needs

# PUBLIC COMMENTS

## RELATIONSHIP TO CCC POLICIES & PRACTICES

Are there requirements to update LCPs?

Will there be incentives to encourage updates?

Will there be any change to shore protection device policies?

# PUBLIC COMMENTS

## HOW TO TREAT SPECIFIC COMMUNITY ASSETS



Transportation Infrastructure



Recreation areas, facilities



Temporary Structures



Coastal Development



# PUBLIC COMMENTS

## ADDITIONAL NEEDS

**Mechanism for regional coordination of adaptation approaches**

**System for monitoring impacts of SLR and effectiveness of adaptation options**

**Additional research on legal and economic challenges**

**Guidance on broader climate change vulnerabilities**



# Chapter 9:

## Next Steps

# MOVING FORWARD...

Courtesy Charles Lester



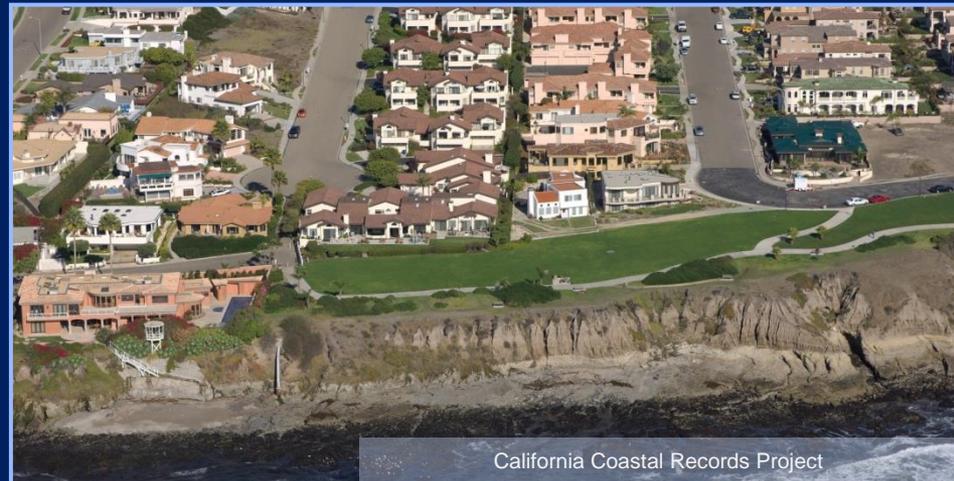
Inspiration Point, Anacapa Island, © Mark Corcoran  
2013 Coastal Commission Amateur Photography Contest



Frisbee in the Dunes, Oceano Dunes, © Randy Krauch  
2013 Coastal Commission Amateur Photography Contest



Laguna Bluebelt © Mitch Ridder  
2014 Coastal Commission Amateur Photography Contest



California Coastal Records Project

To view the Revised Draft SLR Policy Guidance, visit:

<http://www.coastal.ca.gov/climate/slrguidance.html>

To view the Comment and Response document, visit:

[http://documents.coastal.ca.gov/assets/slr/guidance/Final\\_MASTERCommentResponseDoc.pdf](http://documents.coastal.ca.gov/assets/slr/guidance/Final_MASTERCommentResponseDoc.pdf)

To view Commission staff presentations on sea level rise, visit:

<http://www.coastal.ca.gov/climate/SLR-Outreach-Presentations.html>



**Thank You!**  
**QUESTIONS?**