

South Imperial Beach, TRNERR



CALIFORNIA COASTAL COMMISSION DRAFT SEA-LEVEL RISE POLICY GUIDANCE

January 9, 2014

California Coastal Commission Hearing





Oceanside, CA | May 2009



Pasture near Liscom Slough, Arcata CA | Dec 2012



Bolinas, Marin County | Dec 2011

CA King Tides Initiative | Dan Jarvis

CA King Tides Initiative | Humboldt BayKeepers

CA King Tides Initiative | nrmoor

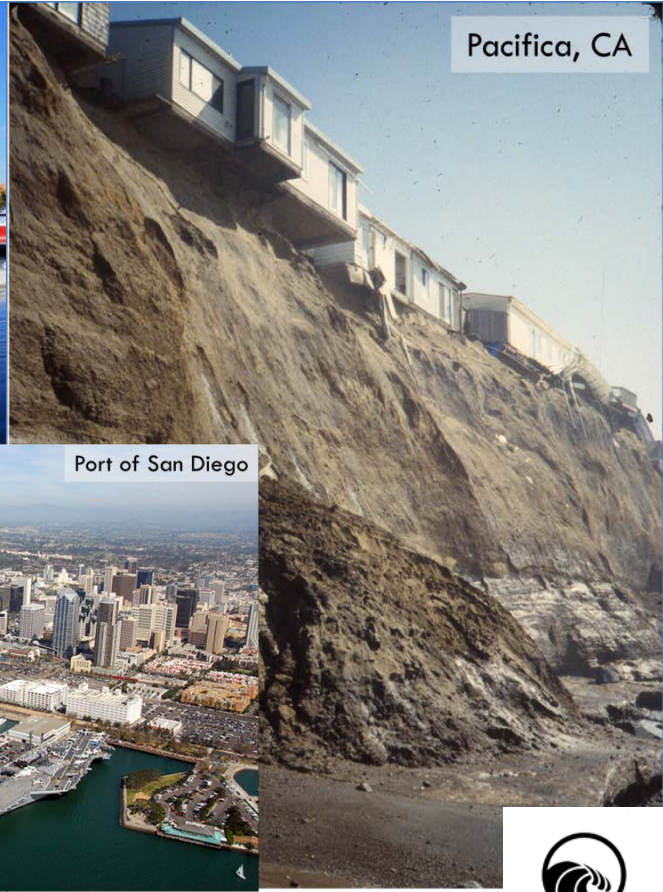


Ocean Beach, San Francisco | Jan 2011



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>



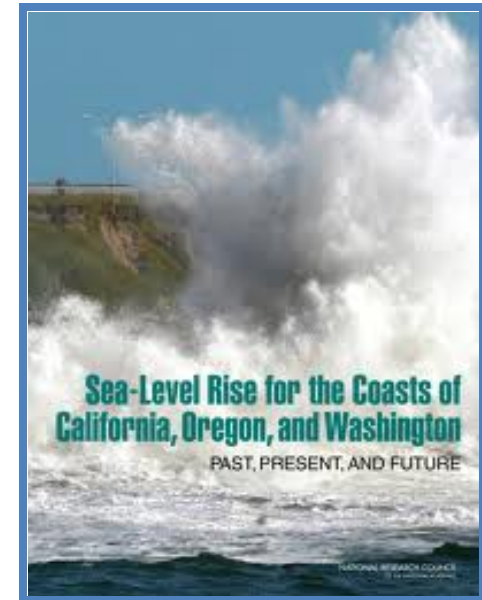
Best Available Science on SLR

3

□ National Research Council Report: SLR Projections for California

Time Period *	South of Cape Mendocino	North of Cape Mendocino
by 2030	4 – 30 cm (1.5 – 12 inches)	-4 – +23 cm (-1.5 – 9 inches)
by 2050	12 – 61 cm (5 – 24 inches)	-3 – +48 cm (-1.2 – 19 inches)
by 2100	42 – 167 cm (17 – 66 inches)	10 – 143 cm (3.6 – 56 inches)

* with year 2000 as a baseline



- Most locations can use these projections without modification
- Humboldt Bay & Eel River Sea Level Rise
 - SLR is at faster rate than region North of Cape Mendocino
 - Modify projections to account for local vertical land motion

Tools and Resources



Tools and Resources

5



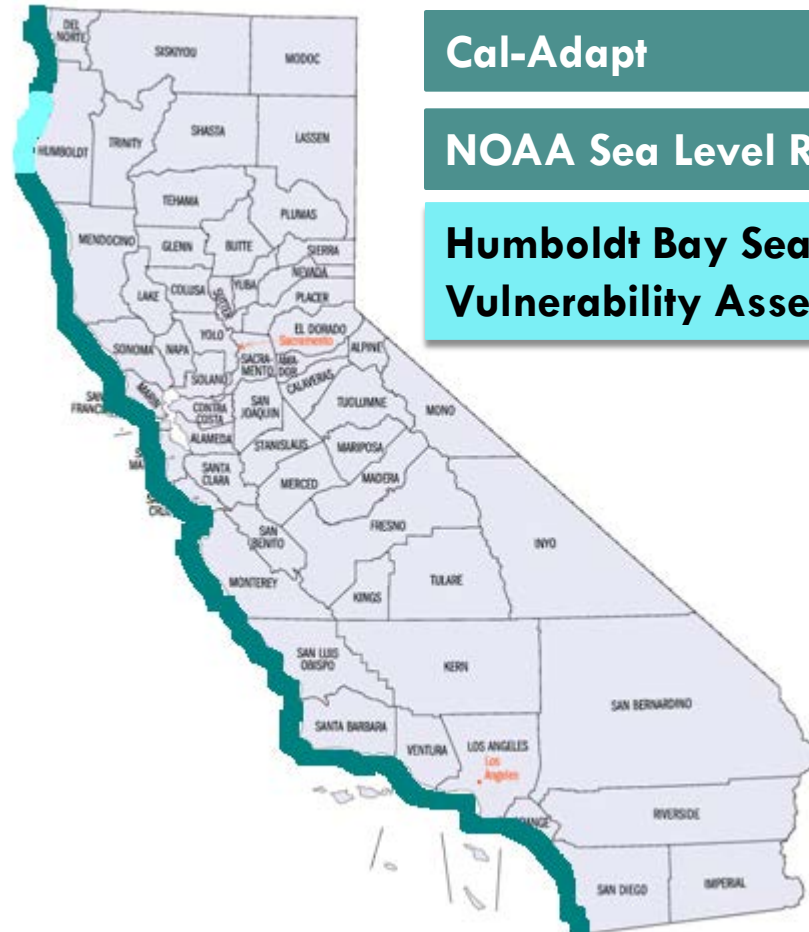
Cal-Adapt

NOAA Sea Level Rise Viewer



Tools and Resources

6



Cal-Adapt

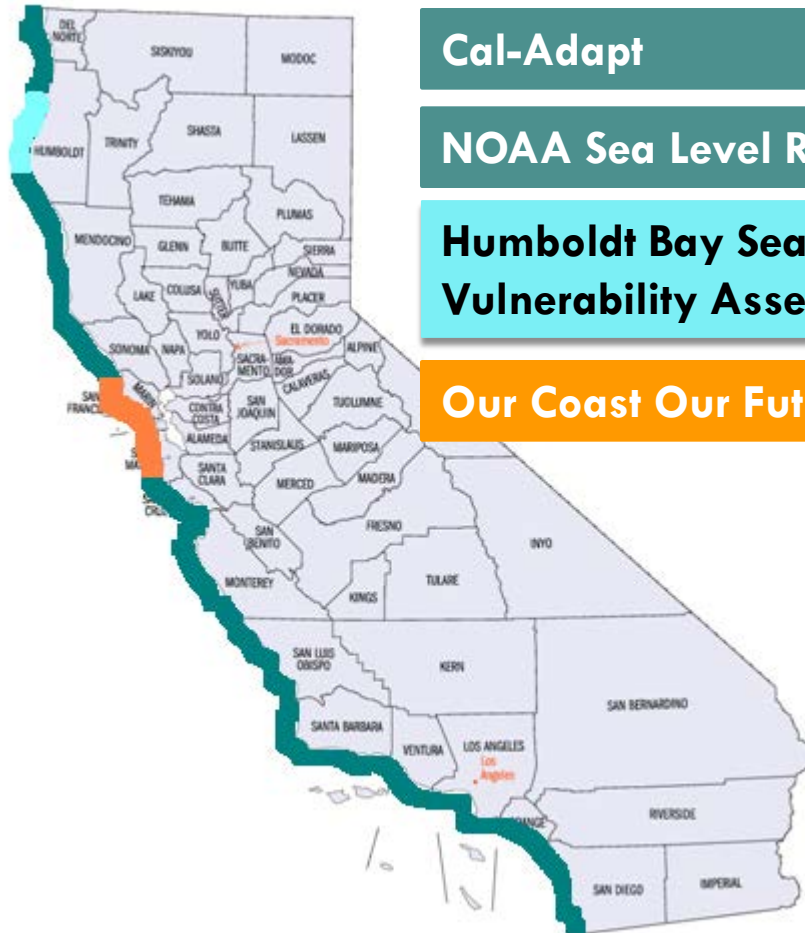
NOAA Sea Level Rise Viewer

**Humboldt Bay Sea Level Rise
Vulnerability Assessment**



Tools and Resources

7



Cal-Adapt

NOAA Sea Level Rise Viewer

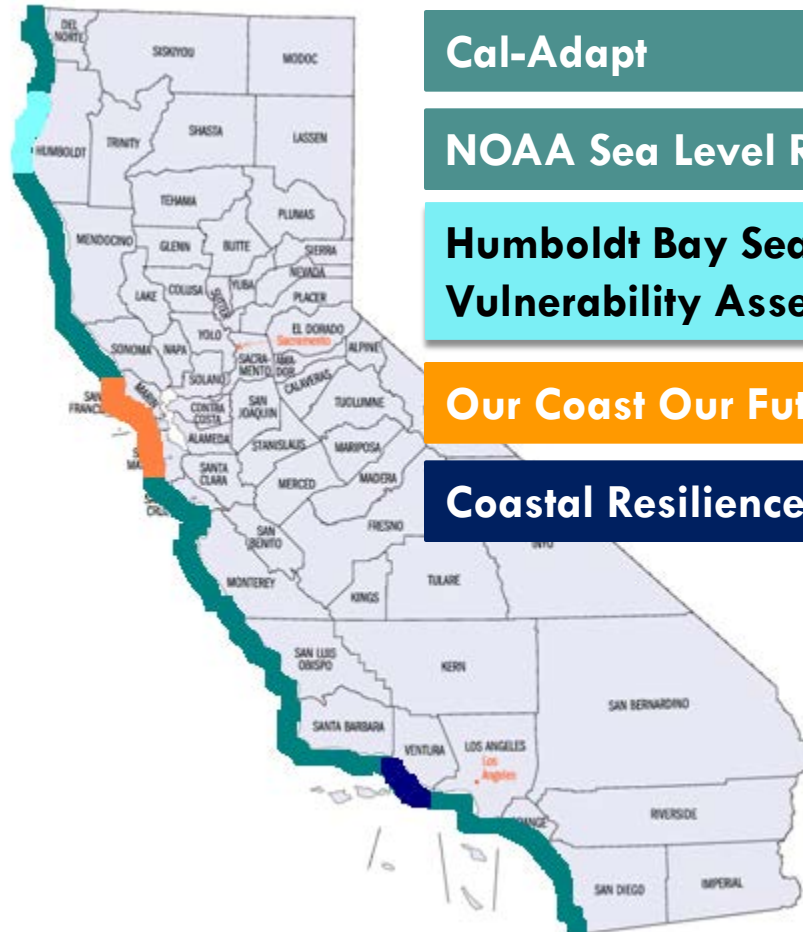
**Humboldt Bay Sea Level Rise
Vulnerability Assessment**

Our Coast Our Future



Tools and Resources

8



Cal-Adapt

NOAA Sea Level Rise Viewer

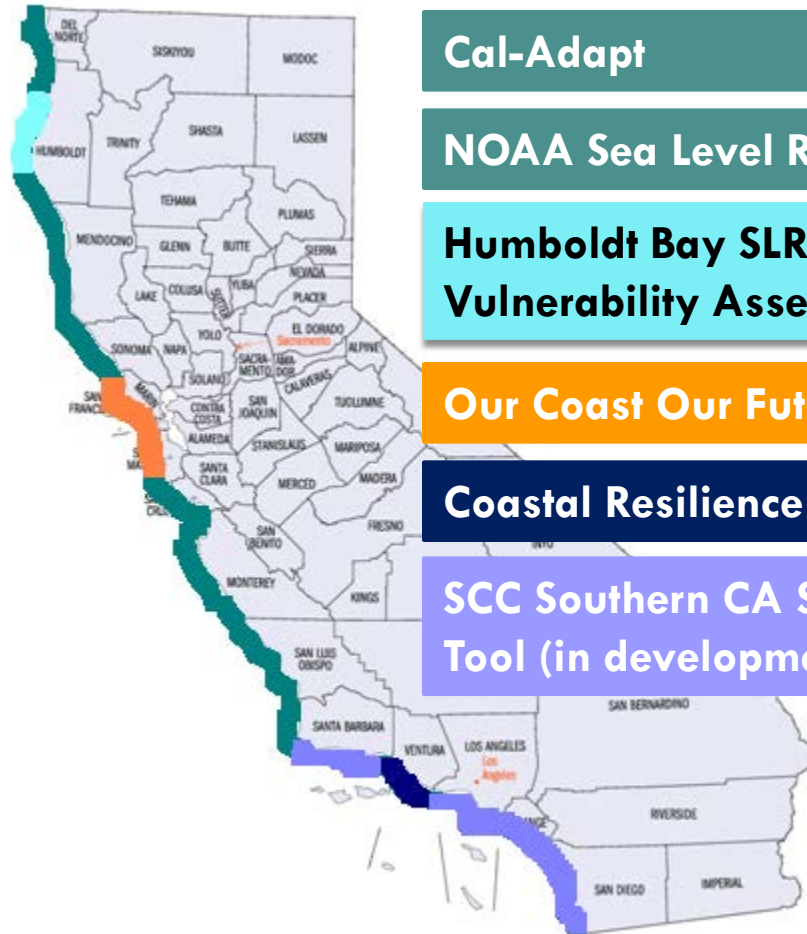
**Humboldt Bay Sea Level Rise
Vulnerability Assessment**

Our Coast Our Future

Coastal Resilience Ventura



Tools and Resources



Cal-Adapt

NOAA Sea Level Rise Viewer

**Humboldt Bay SLR
Vulnerability Assessment**

Our Coast Our Future

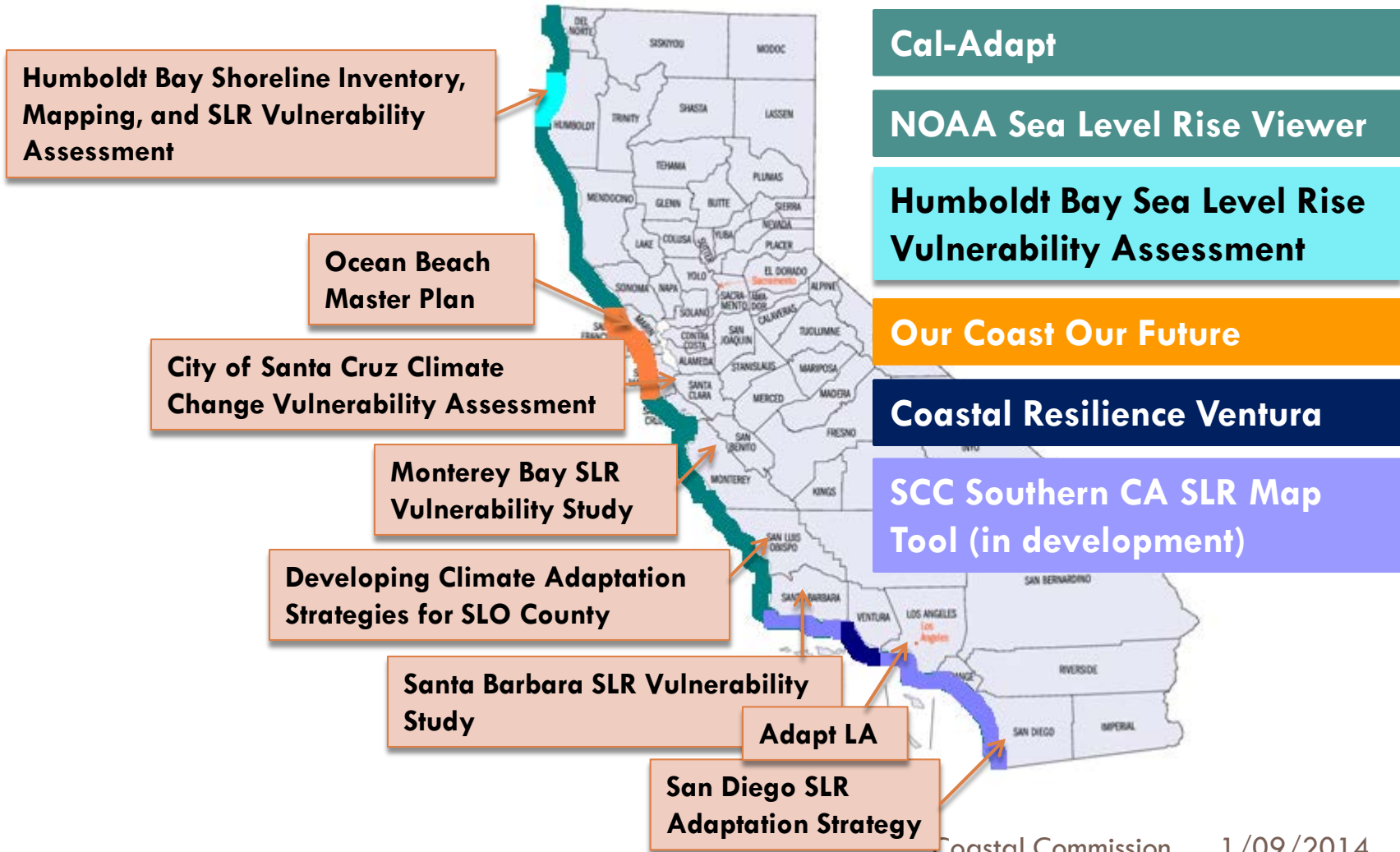
Coastal Resilience Ventura

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

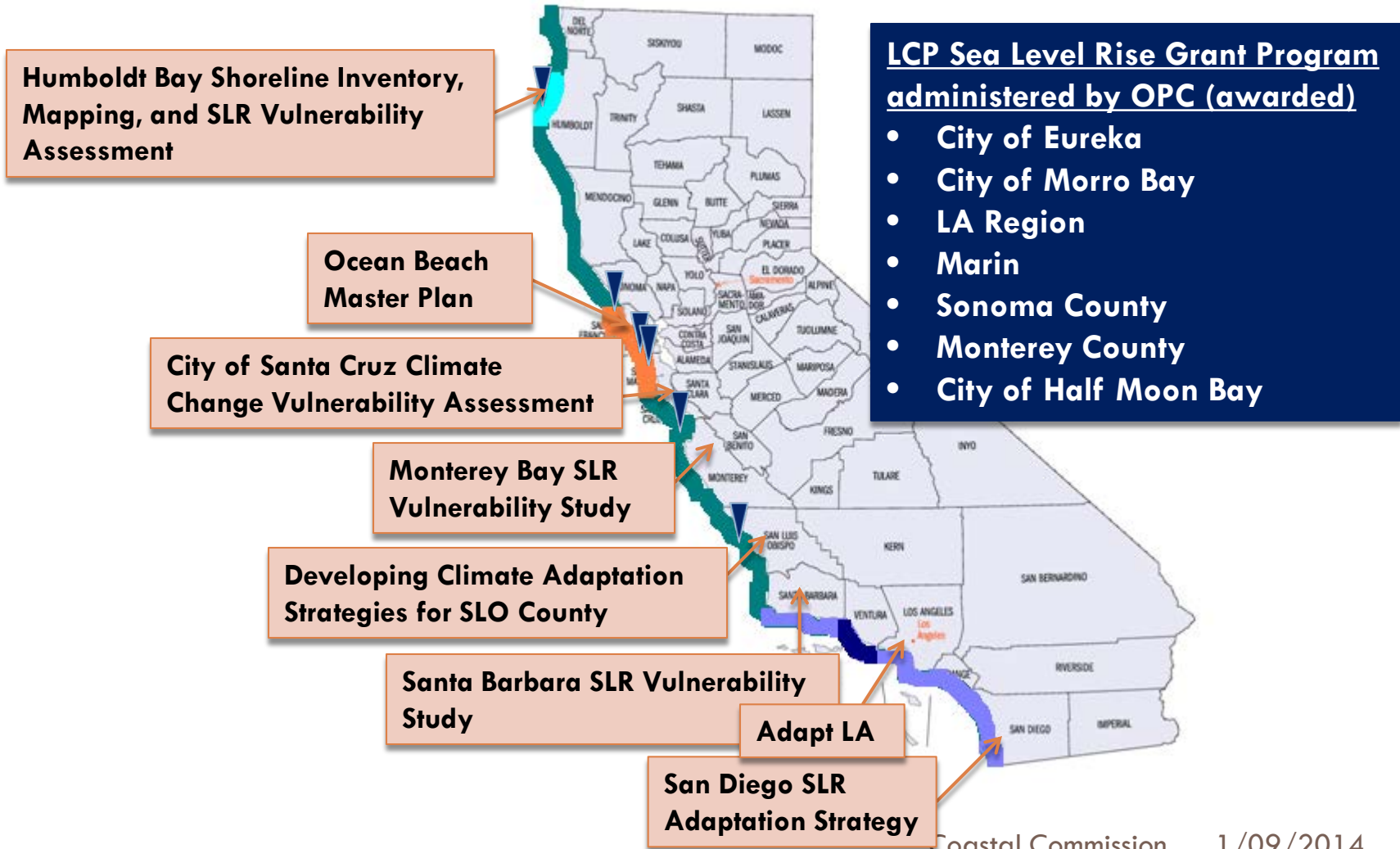


Tools and Resources

10



Tools and Resources



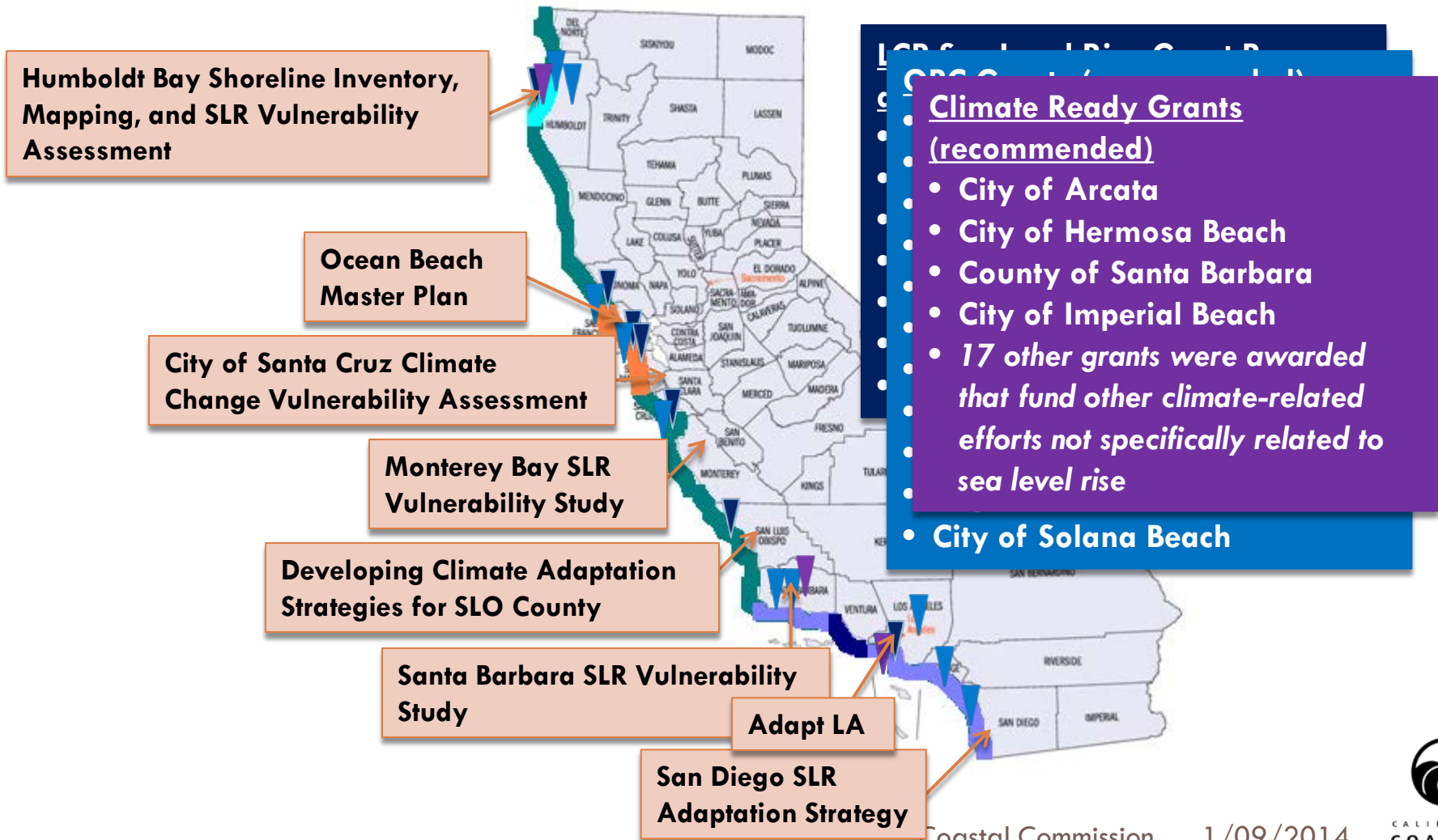
Tools and Resources

12



Tools and Resources

13



How is California addressing sea-level rise?

14

- Statewide efforts
 - ▣ 2009 California Adaptation Strategy
 - ▣ Draft Safeguarding California Plan (update to 2009)
 - ▣ General Plan Guidelines (update in progress)
 - ▣ OES State Hazard Mitigation Plan (update in progress)
 - ▣ OPC: 2013 State SLR Guidance, grant program
 - ▣ 2012 Adaptation Planning Guide
- California Coastal Commission efforts
 - ▣ Local Coastal Programs & Coastal Development Permits
 - ▣ Strategic Plan
 - ▣ Draft SLR Policy Guidance

About the Draft Document

15

IT IS

Draft

Draft Guidance for addressing Sea-Level Rise in conformance with the Coastal Act

Complement to other Commission materials

Multi-purpose guidance in which users may focus on particular chapters

A list of sea-level rise adaptation options to choose from

A living document

IT IS NOT

Final

New regulations

Replacement for other Commission materials

Meant to be read cover to cover

A checklist of adaptation measures where all items have to be accomplished

Static



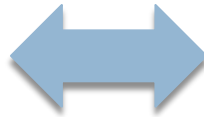
Contents of the Draft Document

16

Executive Summary

Main Report

Chapter 1: Introduction
Chapter 2: Guiding Principles
Chapter 3: Science
Chapter 4: Guidance for LCPs
Chapter 5: Guidance for CDPs
Chapter 6: Additional Research
Chapter 7: Next Steps
Chapter 8: Glossary

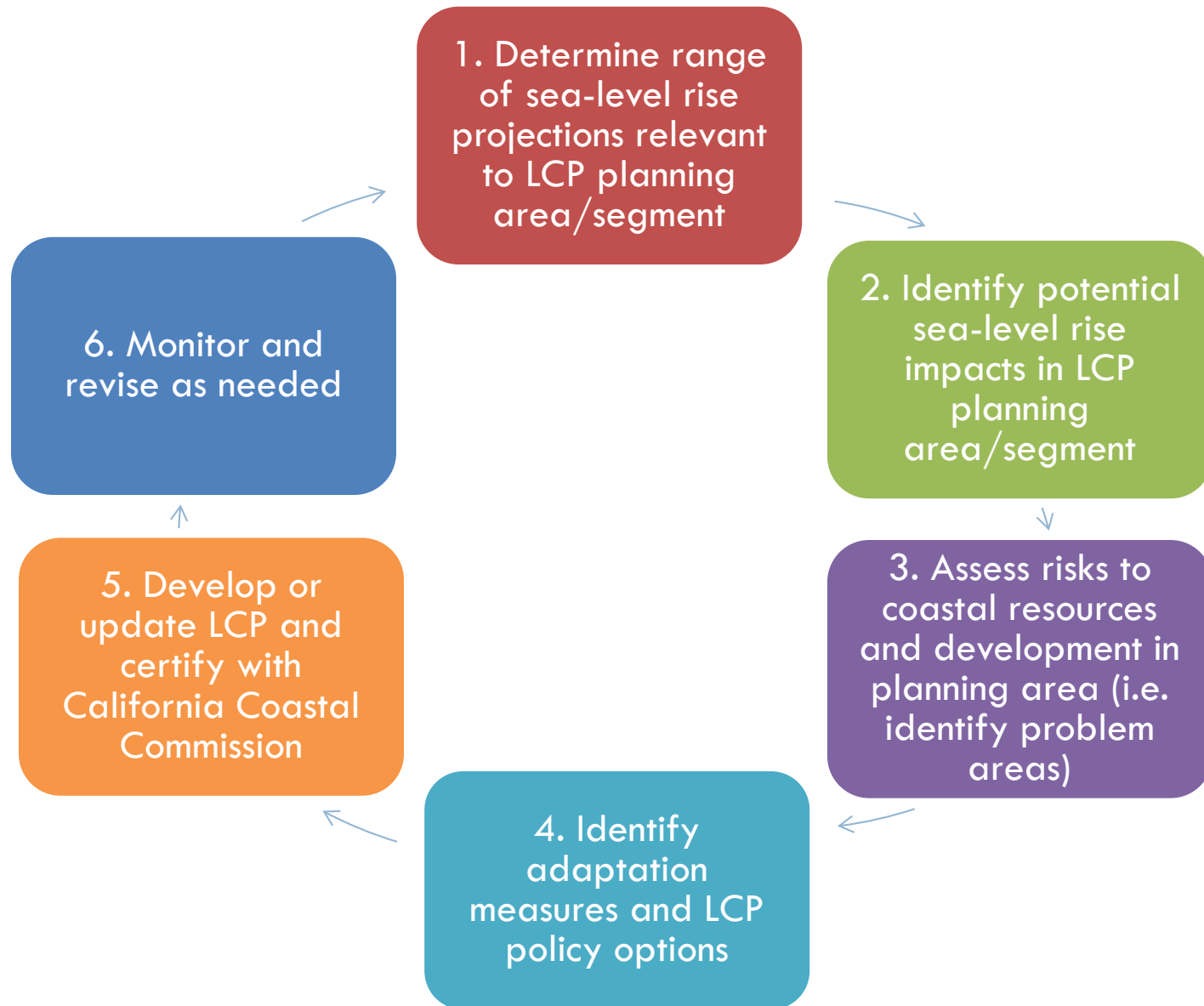


Appendices

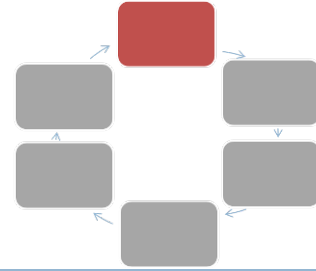
Appendix A: Science
Appendix B: Coastal Engineering
Appendix C: Adaptation Options
Appendix D: LCP Resources
Appendix E: Other Agencies' Programs
Appendix F: Coastal Act Policies



Addressing SLR in LCPs



LCP Step 1: Determine SLR Projections



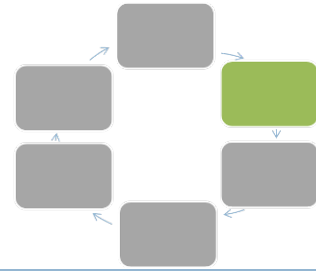
18

Time Period *	South of Cape Mendocino	North of Cape Mendocino
by 2030	4 – 30 cm (1.5 – 12 inches)	-4 – +23 cm (-1.5 – 9 inches)
by 2050	12 – 61 cm (5 – 24 inches)	-3 – +48 cm (-1.2 – 19 inches)
by 2100	42 – 167 cm (17 – 66 inches)	10 – 143 cm (3.6 – 56 inches)
* with year 2000 as a baseline		

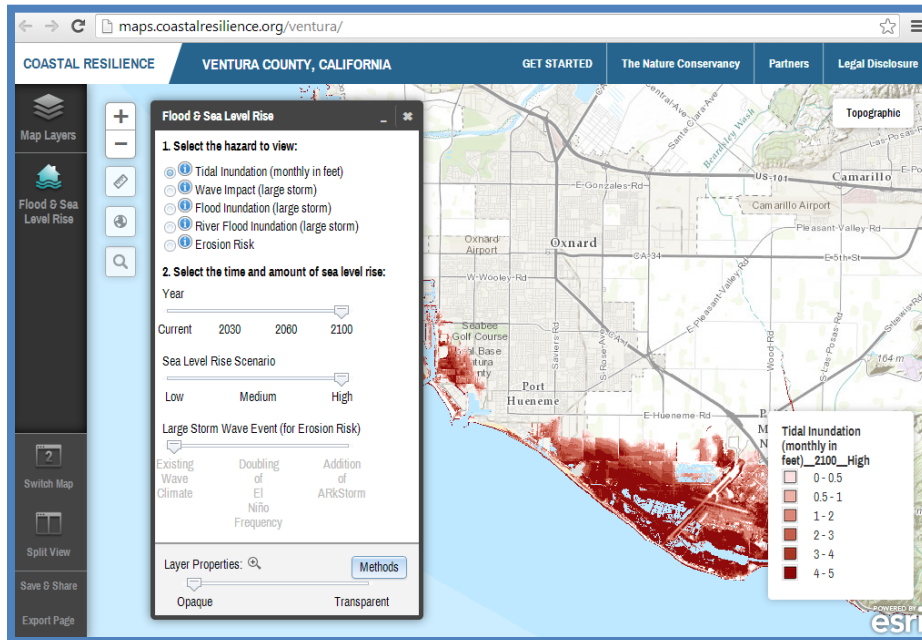
Expected outcomes:

Range of locally relevant sea-level rise projections for the time periods of concern

LCP Step 2: Identify SLR Impacts



19

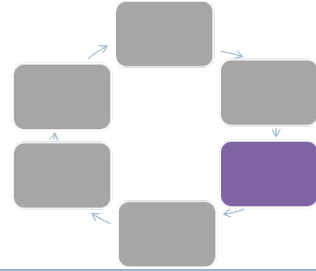


Expected outcomes:

Current and future SLR hazards and impacts mapped and/or described



LCP Step 3: Assess risks to Coastal Resources



20

Coastal Resources to Consider:

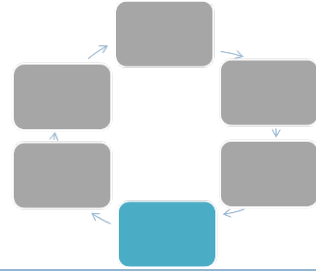
- Public access, beaches, recreation areas
- California Coastal Trail
- Wetlands, ESHA, other habitats
- Agricultural areas
- Cultural sites
- Coastal-dependent uses
- Critical infrastructure
- Coastal Highway 1
- Existing and new development

Expected outcomes:

Risks and expected consequences of SLR impacts to coastal resources and broader community; maps of resources and/or land uses at risk.



LCP Step 4: Identify LCP Adaptation Measures



21

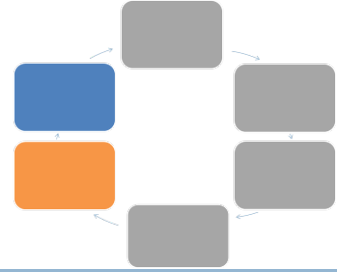


Expected outcomes:

Identification of necessary updates, list of applicable adaptation measures applicable, new implementation policies/ordinances

Tomales Bay Wetland Restoration | CA King Tides Initiative | Jan 2012 | Sarah Allen

LCP Steps 5 & 6: Finalize LCP



22



Image by California Coastal Commission

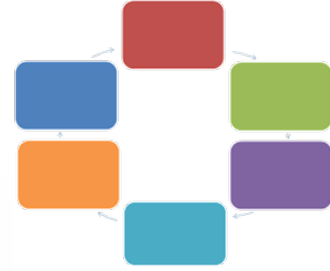
Step 5 expected outcomes:

Certified/updated LCP with policies and land use designations that address sea-level rise and the related hazards

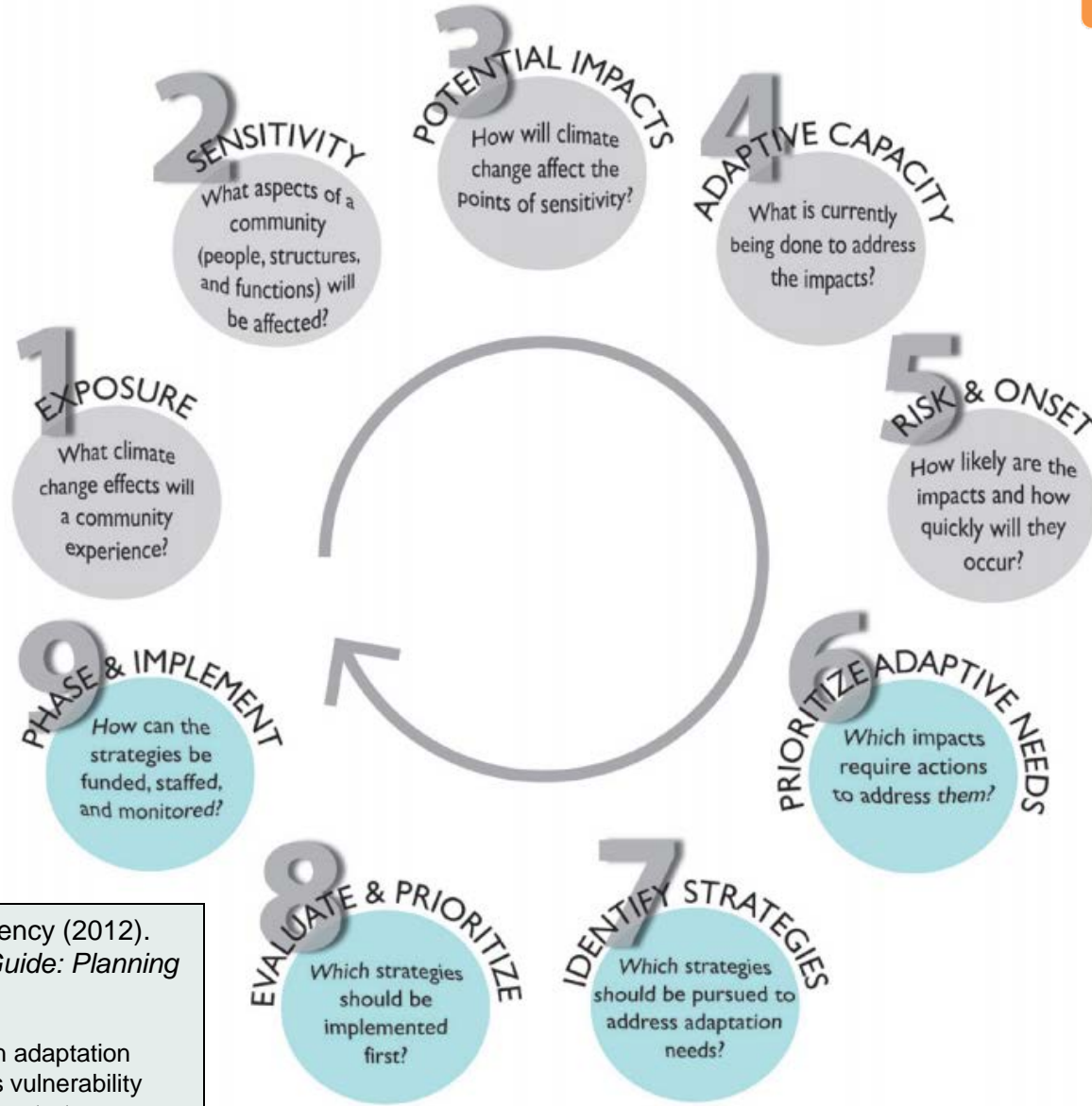
Step 6 expected outcomes:

Plan to monitor the LCP planning area for SLR and other impacts; revisions when conditions change or science is updated

Agency Coordination



2012 California Adaptation Planning Guide



California Natural Resources Agency (2012).
*California Adaptation Planning Guide: Planning
for Adaptive Communities.*

Figure ES-1 (pg. ii): the nine steps in adaptation
planning development, grey denotes vulnerability
assessment, blue denotes adaptation strategy
development.



Addressing SLR in CDPs

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 SLR

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

5. Finalize project design and submit permit application



CDP Step 1: Determine SLR Projections

25

Expected Outcomes:

- Proposed project life
- Scenarios of SLR for use in project analysis

Time Period *	South of Cape Mendocino	North of Cape Mendocino
by 2030	4 – 30 cm (1.5 – 12 inches)	-4 – +23 cm (-1.5 – 9 inches)
by 2050	12 – 61 cm (5 – 24 inches)	-3 – +48 cm (-1.2 – 19 inches)
by 2100	42 – 167 cm (17 – 66 inches)	10 – 143 cm (3.6 – 56 inches)

* with year 2000 as a baseline



Levees along Wintersberg Channel, Huntington Beach | Lesley Ewing

CDP Step 2: Identify SLR Impacts & Constraints

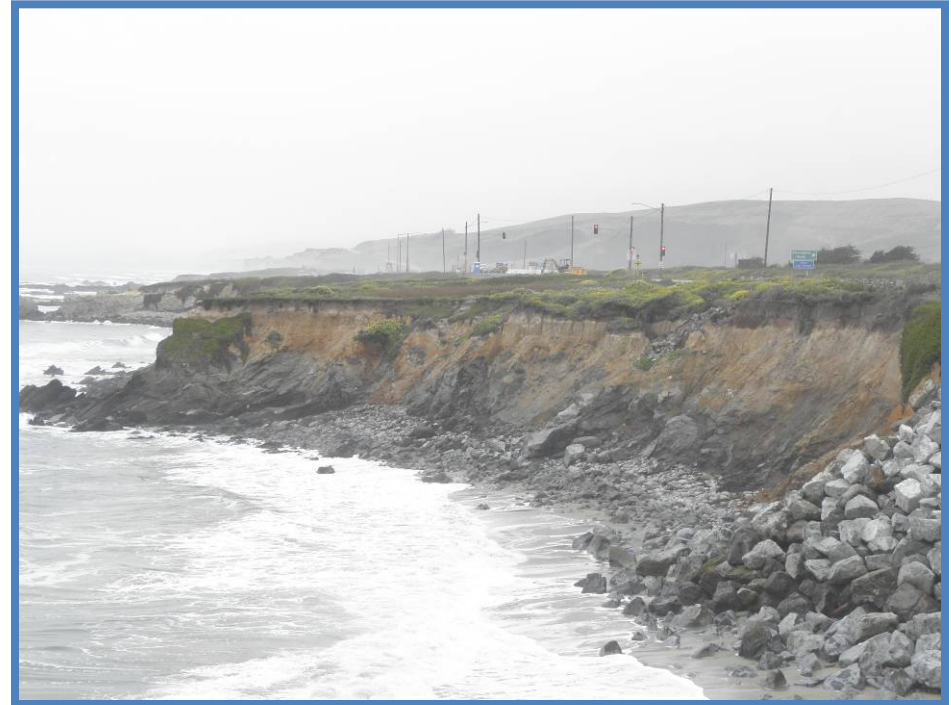
26

Hazard Analysis Types:

- Geologic Stability
- Erosion
- Waves and wave runup
- Flooding and inundation

Expected Outcomes:

- Maps of site-specific hazards
- Areas that can safely support development



Highway 1 near Pescadero, San Mateo County |
Lesley Ewing

CDP Step 3: Assess Impacts to Coastal Resources

27

Coastal Resources to Consider:

- Public access, beaches, recreation areas
- California Coastal Trail
- Wetlands, ESHA, other habitats
- Agricultural areas
- Cultural sites
- Coastal-dependent uses
- Critical infrastructure
- Coastal Highway 1
- Existing and new development



Ocean Beach, San Francisco | Lesley Ewing

Expected Outcomes:

SLR risks to coastal resources;
map overlaying development and
resource constraints



CDP Step 4: Identify Project Alternatives



28



Surfers Point Managed Retreat Project, Ventura, CA

Expected Outcomes:

- Project modifications and reexamination of impacts
- 1+ project alternatives
- Possible adaptation options



CDP Step 5: Finalize Application



29

Expected Outcomes:

- Analysis of sea-level rise concerns for inclusion in a CDP application
- Combine with other application items for a complete submittal



Pacifica State Beach, Linda Mar Area, Pacifica, CA

Public Comments to Date

30

Relationship to CCC
policies and practices

Legal Context and
Policy Framework

Adaptation Strategies

How to Treat Specific
Coastal Assets



Relationship to CCC Policies & Practices

31

Are there **requirements to update LCPs**?

Will there be **incentives** to encourage updates?

How does this guidance relate to **substantial issue reviews** of appeals?

Will there be any change to **shore protection device** policies?

Does the guidance discuss the challenges for **vulnerable populations**?



Legal Context and Policy Framework

32

What is the general **legal framework** and **case history** for adaptation?

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

How can data for the **Mean High Tide** line be improved for planning purposes?

How does guidance relate to **building codes** and **height restrictions?**



Adaptation Strategies

33

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

Explain the role of **beach nourishment** in short versus long term strategies

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

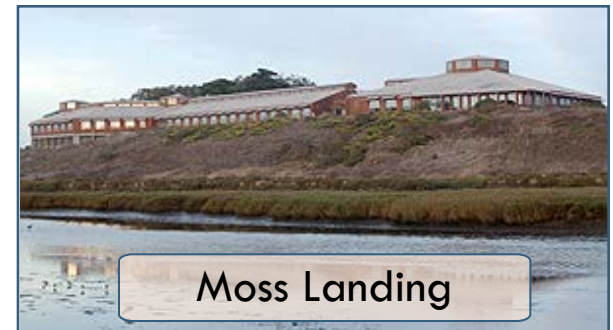
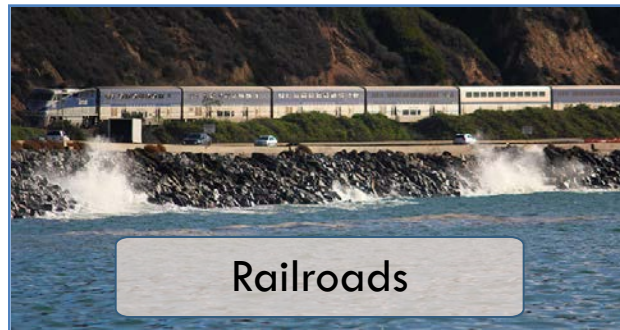
Consider recommending **public acquisition of natural habitats**

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



How to Treat Specific Community Assets

Does the document explain how to address SLR impacts to specific assets?



Additional Needs

35

Mechanism for regional coordination
of adaptation approaches

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

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

Additional **research** on **legal** and
economic challenges

Guidance on broader **climate change**
vulnerabilities



Outreach

36



To date:

- 120-day comment period
- 3 webinars
- 14 in-person meetings
- District office meetings
- 350+ people

Next Steps:

- Trainings and symposia
- Grant support for local governments
- Reaching out to targeted interest groups



Tentative Timeline

37

Task Name	Q4			Q1			Q2		
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1 Draft SLR Guidance Released	◆								
2 <input type="checkbox"/> Public Review	▬								
3 Public Review Period	▬								
4 Public Hearing #1 (Dec)			◆						
5 Public Hearing #2 (Jan)				◆					
6 Public Comment Deadline (Feb 14)					◆				
7 Update Guidance Document					▬				
8 <input type="checkbox"/> Review & Adoption of Final Guidance							▬		
9 Public Review of Final Guidance							▬		
10 Public Hearing on Final Guidance								▬	
11 Commission Action on Final Guidance									◆



Thank You

38

Contact Information:

Hilary Papendick

hpapendick@coastal.ca.gov

(415) 904-5294

Lesley Ewing

lewing@coastal.ca.gov

(415) 904-5291

Submit comments to:

SLRGuidancedocument@coastal.ca.gov

SLR Working Group

45 Fremont St

Suite 2000

San Francisco, CA 94105

To access the document go to:

www.coastal.ca.gov/climate/SLRguidance

