



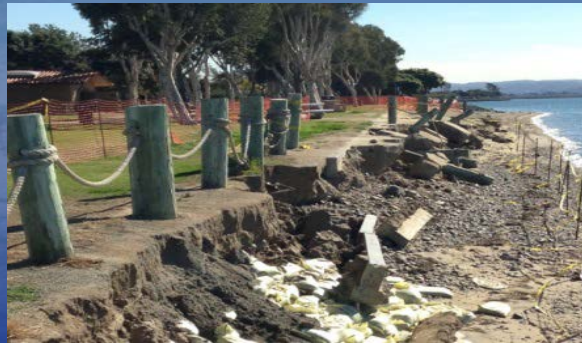
SEA LEVEL GUIDANCE & PLANNING FOR A RESILIENT PORTS and HARBORS

CMANC CONFERENCE

September 13,
2018

Jason Giffen
Assistant Vice President
Planning and Green Port

Historic Coastal Flooding Events on Tidelands



Climate Change Adaption, including Sea Level Rise: California Regulations and Guidance

- **Assembly Bill 32 2006**
- **Governor's Executive Order S-13-08 2008**
- **Assembly Bill 2516 2014**
- **Executive Order B-30-15 2015**
- **Senate Bill 246 2015**
- **Coastal Commission Sea Level Rise Guidance 2015***
- **Assembly Bill 2800 2016**
- **Senate Bill 32 2017**
- **Natural Resources Council, California
Climate Adaptation Strategy 2009, 2015, 2018**
- **Ocean Protection Council Sea Level Rise
Guidance 2018**

**Currently being updated*

9	10	11	12	13	← 2005
16	17	18	19	20	← 2006
23	24	25	26	27	← 2007
30	31	1	2	3	← 2008
6	7	8	9	10	← 2009
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24	25	26	27	28	← 2011
31	1	2	3	4	← 2012
7	8	9	10	11	← 2013
14	15	16	17	18	← 2014
21	22	23	24	25	← 2015
28	29	30	31	1	← 2016
5	6	7	8	9	← 2017
12	13	14	15	16	← 2018
19	20	21	22	23	← 2019
26	27	28	29	30	← 2020

Climate Change: Greenhouse Gas Emission Reductions

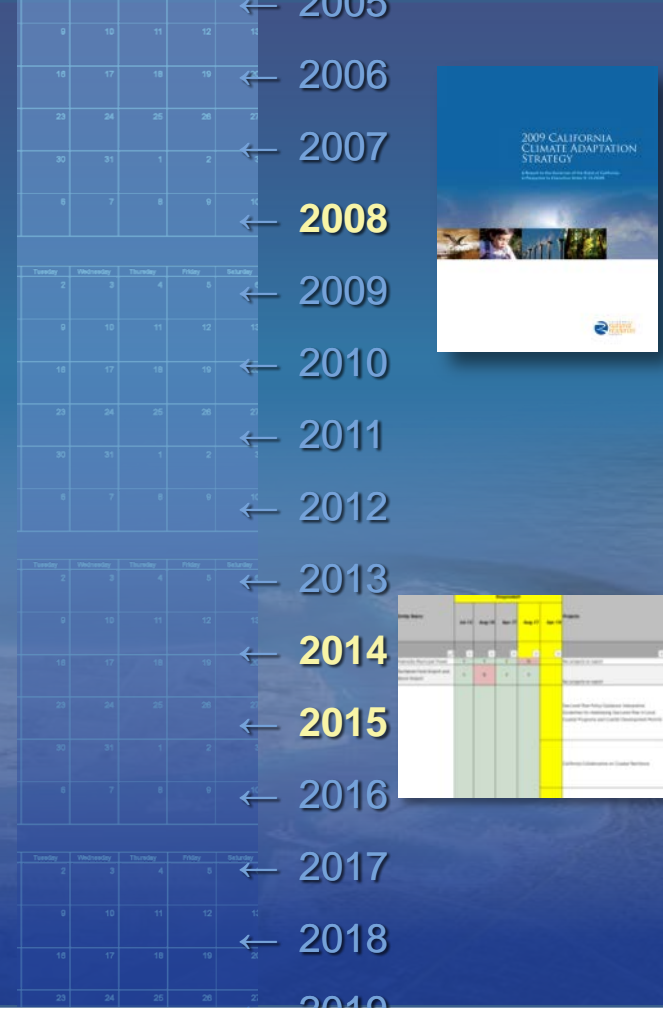
- **Assembly Bill 32, 2006**
 - requires California to reduce its GHG emissions to 1990 levels by 2020 — a reduction of approximately **15 percent** below emissions expected under a “business as usual” scenario.
- **Senate Bill 32, 2017**
 - This bill would require the state board to ensure that statewide greenhouse gas emissions are reduced to **40 percent** below the 1990 level by 2030.



Climate Change: Adaption

Executive Orders and Assembly/Senate Bills

- **Governor's Executive Order S-13-08, 2008**
 - Requires the California Natural Resources Agency to develop a state Climate Adaptation Strategy in coordination with local, regional, state and federal public and private entities.
- **Assembly Bill 2516, 2014**
 - Directs the creation of a Planning for Sea Level Rise Database by the California Natural Resources Agency in collaboration with the Ocean Protection Council, to describe the steps being taken throughout the state to prepare for, and adapt to, sea level rise.
- **Senate Bill 246, 2015**
 - Establishes the Integrated Climate Adaptation and Resiliency Program to coordinate regional and local efforts with state climate adaptation strategies to adapt to the impacts of climate change



Climate Change Adaption, including Sea Level Rise: Executive Orders and Assembly Bills

- **Executive Order B-30-15, 2015**

- Requires that the state's adaptation strategy, Safeguarding California, be updated every 3 years; identifies vulnerabilities to climate change by sector or regions; outlines primary risks to residents, property, communities and natural systems

- **Assembly Bill 2800, 2016**

- Require state agencies to take into account the current and future impacts of climate change when planning, designing, building, operating, maintaining, and investing in state infrastructure.



Sea Level Rise: State Land Specific Assembly Bills

- **Assembly Bill 691, 2013**
 - Local trustees of State Lands must address the impacts of sea level rise for all of its legislatively granted public trust lands shall be among the management priorities

Submittal to State Lands
Commission due June 30, 2019

AB691

- Vulnerability Assessment
 - Exposure to Impacts
 - 2030, 2050, 2100
- Adaptation Strategies
- Financial Impacts

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14	15	16	17	18	← 2018
25	26	27	28	29	← 2019

Sea Level Rise: Best Available Science

Science/Technical Guidance

- **Ocean Protection Council Sea Level Rise Guidance, 2018**
 - Provides a bold, science-based methodology for state and local governments to analyze and assess the risks associated with sea-level rise, and to incorporate sea-level rise into their planning, permitting, and investment decisions.

Year/Percentile	Median		Likely Range		1-in-20 Chance		1-in-200 Chance	
	Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters
2030	0.5	0.15	0.4–0.6	0.12–0.18	0.7	0.21	0.9	0.28
2050	0.9	0.27	0.7–1.2	0.21–0.37	1.4	0.43	2.0	0.61
2100 (RCP 2.6)	1.7	0.52	1.1–2.5	0.34–0.76	3.3	1.01	5.8	1.77
2100 (RCP 4.5)	2.0	0.61	1.4–2.8	0.43–0.85	3.6	1.10	6.0	1.83
2100 (RCP 8.5)	2.6	0.79	1.8–3.6	0.55–1.10	4.6	1.40	7.1	2.16

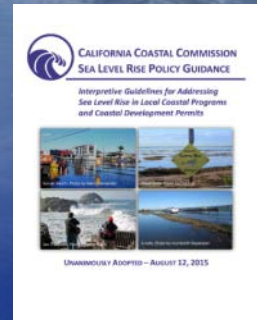


Sea Level Rise: Best Available Science

Policy Guidance

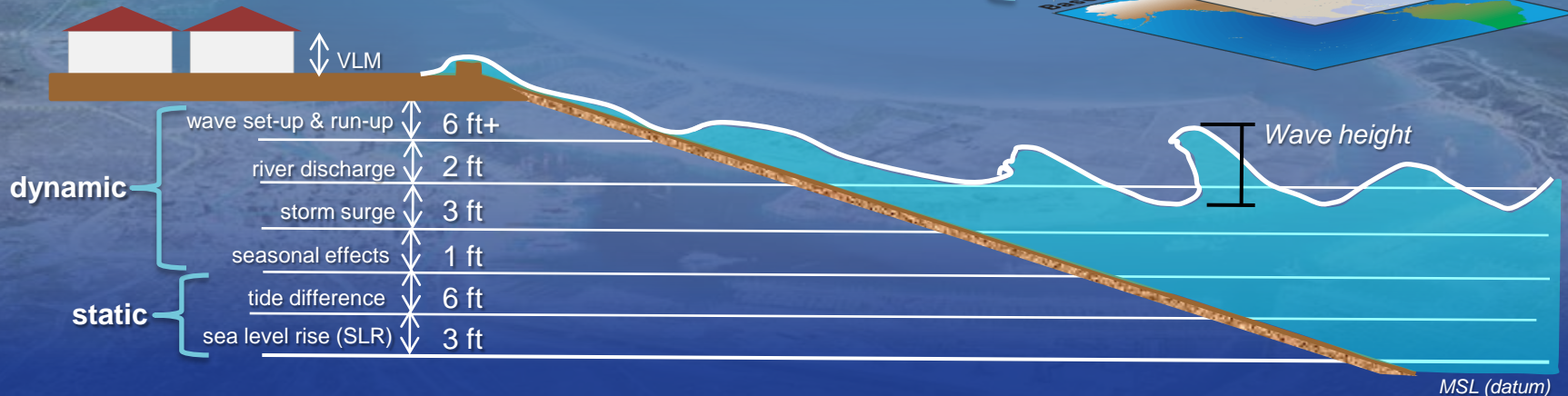
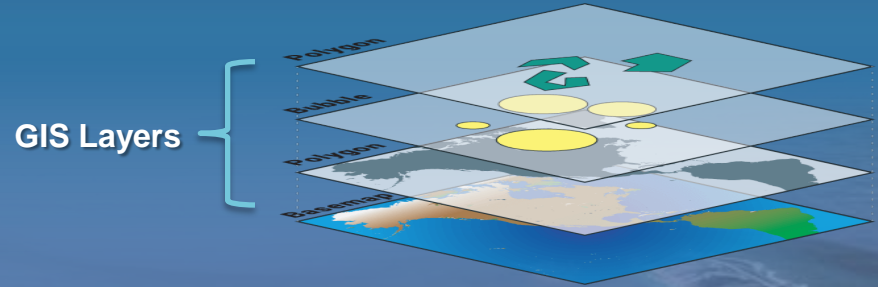
- **Coastal Commission Sea Level Rise Guidance, 2015, 2018***
 - Applies the Coastal Act to the challenges presented by sea level rise through Local Coastal Program (LCP) certifications and updates and Coastal Development Permit (CDP) decisions. It organizes current science, technical, and other information and practices into a single resource to facilitate implementation of the Coastal Act by coastal managers at the state and local level.
 - ** Currently being updated*

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15	16	← 2019			



Coastal Models:

- NOAA Sea Level Rise Viewer
- Coastal Storm Modeling System (CoSMoS)



Agencies in California Addressing Sea Level Rise

- Hayward Area Shoreline Planning Agency
- San Francisco Bay Conservation and Development Commission and NOAA
- Yolo County
- Monterey Bay Sanctuary Foundation and Southern Monterey Bay Coastal Erosion Working Group
- State Coastal Conservancy
- Santa Cruz County
- City of Sunnyvale
- State Coastal Conservancy and Coastal Ecosystems Institute of Northern California
- City of Redwood
- City of Hermosa Beach
- Alameda County
- Santa Clara County
- City of Goleta
- San Francisco International Airport
- Humboldt Bay Sea Level Rise Adaptation Planning Group
- Humboldt Bay Harbor
- Marin County
- City of Foster
- City of Oxnard
- Los Angeles County
- Port of Long Beach
- City and County of San Francisco
- City of Imperial Beach
- City of Eureka
- San Francisquito Creek Joint Powers Authority
- City of Monterey
- Santa Barbara County
- CA Department of Public Health
- CA Department of Public Health
- City of Oakland
- Association of Bay Area Governments
- San Diego Regional Climate Collaborative
- County of San Mateo
- Contra Costa County
- City of Carlsbad
- San Diego County





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