

**CALIFORNIA COASTAL COMMISSION**

45 FREMONT, SUITE 2000  
SAN FRANCISCO, CA 94105-2219  
VOICE (415) 904-5200  
FAX (415) 904-5400  
TDD (415) 597-5885



# Th6

**DATE:** July 20, 2018

**TO:** Commissioners and Interested Parties

**FROM:** John Ainsworth, Executive Director  
Susan Hansch, Chief Deputy Director  
Madeline Cavalieri, Statewide Planning Manager  
Kelsey Ducklow, Coastal Program Analyst

**SUBJECT:** Briefing on recommended updates to the Coastal Commission Sea Level Rise Policy Guidance to reflect new scientific information and recommendations from the Ocean Protection Council. **Informational item only. Commission will consider adoption at a future meeting.**

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## I. BACKGROUND

In August 2015, the Coastal Commission unanimously adopted its *Sea Level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits*. As interpretive guidelines, and pursuant to Public Resources Code section 30620, this document is intended to assist the Commission, local governments, and members of the public when evaluating how to respond to sea level rise, but it is not a regulatory document.

In general, the Guidance presents information and recommendations for how to incorporate sea level rise adaptation into various Coastal Commission planning and permitting processes. It includes:

- Guiding Principles for addressing sea level rise in California's coastal zone
- A discussion of the best available science on sea level rise and its possible impacts
- Step-by-step guidance for addressing sea level rise in Local Coastal Programs and the Coastal Development Permit process
- Descriptions of a variety of possible adaptation strategies
- A discussion of the legal context of sea level rise adaptation planning
- Detailed appendices with technical information and additional resources

## Th6 (Science updates to the CCC SLR Policy Guidance)

The CCC Sea Level Rise Policy Guidance was developed through an extensive process involving numerous rounds of public review and comment. It also fit into an active state effort to address sea level rise and climate change, and was designed to incorporate, reflect, and complement various statewide guidance and recommendations. Specifically, the Guidance reflects the broad concepts and strategies in *Safeguarding California* – the statewide climate adaptation plan developed by the California Natural Resources Agency – and complements it by providing information more specific to the Coastal Act. The CCC Guidance was also written to reflect the recommendations of the Ocean Protection Council’s *State Sea-Level Rise Guidance (2013 Update)*, notably recommending that stakeholders utilize the projections presented in the 2012 National Research Council (NRC) report *Sea-Level Rise for the Coasts of California, Oregon and Washington: Past, Present, and Future*.

However, sea level rise science has continued to evolve since the adoption of the 2013 OPC Guidance and the 2015 CCC Guidance, and recent scientific studies prompted Governor Brown to direct the Ocean Protection Council to synthesize the state of sea level rise science and to update the State Sea-Level Rise Guidance as necessary. In 2017, a working group of OPC’s Science Advisory team (comprised mainly of climate researchers at various academic institutions in California and throughout the country) released [Rising Seas in California: An Update on Sea-Level Rise Science](#). This report provides a summary of the scientific updates since the 2012 NRC Report, including information contained within the IPCC 5<sup>th</sup> Assessment Report (2014) as well as recently published research that expands our understanding of ice sheet dynamics. It includes seven key findings (each described in greater detail in the report):

1. Scientific understanding of sea level rise is advancing at a rapid pace
2. The direction of sea level change is clear
3. The rate of ice loss from the Greenland and Antarctic ice sheets is increasing
4. New scientific evidence has highlighted the potential for extreme sea level rise
5. Probabilities of specific sea level increases can inform decisions
6. Current [*greenhouse gas emissions*] policy decisions are shaping our coastal future
7. Waiting for scientific certainty is neither a safe nor prudent option

The new findings on sea level rise presented in the Rising Seas report, particularly the probabilistic sea level rise projections and increased understanding of ice sheet dynamics, prompted the update to the State’s sea level rise guidance document. The [State Sea-Level Rise Guidance: 2018 Update](#) was adopted by the Ocean Protection Council in March 2018, and provides both state agencies and local governments with a science-based methodology to assess sea level rise risks.

Most significantly, OPC utilized the information provided in the Rising Seas report to develop new projections that they recommend evaluating for planning, permitting, investment, and other decisions. Projection tables are included for 12 tide gauges along the California coast, and each table presents projections for every 10 years from 2030 to 2150. Further, OPC has highlighted three specific scenarios that they recommend evaluating based on the type of project and the level of risk associated with the development type (or planning area). These projection scenarios include:

- *Low risk aversion scenario*: the upper value for the “likely range” (which has approximately a 17% chance of being exceeded); may be used for projects that would have limited consequences or a higher ability to adapt.
- *Medium-high risk aversion scenario*: the 1-in-200 chance (or 0.5% probability of exceedance); should be used for projects with greater consequences and/or a lower ability to adapt.
- *Extreme risk aversion (H++)*: accounts for the extreme ice loss scenario (which does not have an associated probability at this time); should be used for projects with little to no adaptive capacity that would be irreversibly destroyed or significantly costly to repair, and/or would have considerable public health, public safety, or environmental impacts should that level of sea level rise occur.

Taken together, the 2018 OPC Guidance and the Rising Seas science report account for the current best available science on sea level rise for California. Focused updates to the 2015 CCC Sea Level Rise Policy Guidance, as summarized below, are recommended to remain reflective of the most up-to-date science and statewide guidance.

## II. SUMMARY OF REVISIONS

Focused updates to the 2015 CCC Sea Level Rise Policy Guidance have been developed to incorporate evolving science, up-to-date sea level rise projections tailored to the State of California, and recent statewide guidance. New/updated language is shown in the July 2018 Draft Updates version of the SLR Policy Guidance ([Exhibit 1](#)) in **bold underline**. The main updates include the following:

Throughout the Entire Document:

- Any reference to the 2012 NRC Report as best available science has been updated to refer instead to the 2018 OPC Guidance
- The CCC-developed tables in the main body of the document presenting the NRC projections have been removed and replaced with an adapted version of the projection table for the San Francisco tide gauge from the 2018 OPC Guidance (projection tables for the 12 California tide gauges are all included in a new Appendix G)
- Efforts have been made to check and update hyperlinks

Chapter 3: Sea Level Rise Science

- Detailed discussion of the 2012 NRC report has been replaced with discussion of the Rising Seas science report and 2018 OPC Guidance
- Language related to the possibility for extreme sea level rise resulting from rapid ice sheet loss (from the Rising Seas report) has been added to the section on “abrupt change”

Chapter 4: Consequences of SLR

- Minor updates to reference recent state guidance on climate and environmental justice

## Th6 (Science updates to the CCC SLR Policy Guidance)

### Chapter 5: Addressing SLR in LCPs

- Language related to identifying and choosing appropriate sea level rise projections to analyze (Step 1) has been added/updated to reflect the recommendations in the 2018 OPC Guidance
- Updates have been made to Table 5 (SLR Mapping tools) to reflect current resources

### Chapter 6: Addressing SLR in CDPs

- Language related to identifying and choosing appropriate sea level rise projections to analyze (Step 1) has been added/updated to reflect the recommendations in the 2018 OPC Guidance

### Appendix A: SLR Science and Projections for Future Change

- Detailed discussion of the 2012 NRC report has been replaced with discussion of the Rising Seas science report and 2018 OPC Guidance

### Appendix B: Developing Local Hazard Conditions

- Sections on how to develop temporally and spatially appropriate SLR projections (Step 1) have been simplified because they are less relevant, given that the 2018 OPC Guidance includes projections for 12 tide gauges along the California coast and for every 10 years from 2030 to 2150.
- Tables have been updated to reflect current resources (though updates may not be exhaustive)

### Appendix C: Resources for Addressing SLR

- Tables have been updated to reflect current resources (though updates may not be exhaustive)

### Appendix E: Funding Opportunities for LCP Planning and Implementation

- Updated to reflect current resources (though updates may not be exhaustive)

### Appendix G: SLR Projections for 12 California Tide Gauges

- NEW APPENDIX – contains the projection tables for the 12 California tide gauges, adapted from the 2018 OPC Guidance

## III. EXHIBITS

### [Exhibit 1 – Recommended science updates to the CCC SLR Policy Guidance](#)