Resolution of the California Ocean Protection Council on Sea-Level Rise

DRAFT

November 9, 2010

WHEREAS, numerous peer-reviewed scientific studies and exhaustive research has determined that climate induced sea-level rise may have a dramatic negative impact on coastal planning and development; and

WHEREAS, research funded in part by the Ocean Protection Council (OPC) has shown that a 55-inch sea-level rise (SLR) with a 100-year storm event along the California coast may cause nearly $100 billion in property damages and put approximately 480,000 people at risk; and

WHEREAS, there has been an expressed need from state agencies for guidance on SLR to be used in the planning and development of current and future projects; and

WHEREAS, Governor's Executive Order S-13-08 directed state agencies to consider a range of SLR scenarios for the years 2050 and 2100 to assess project vulnerability, reduce expected risks, and increase resiliency to sea-level rise; and

WHEREAS, Governor's Executive Order S-13-08 called for the OPC to work with other state agencies to support an expert panel through the National Academy of Sciences (NAS) to develop recommendations for ranges of SLR to use for vulnerability assessments; and

WHEREAS, the NAS is conducting a comprehensive sea-level rise assessment and a final report is unlikely to be released before 2012 and sea-level rise guidance is necessary to inform state project decisions now; and

WHEREAS, coordination among state agencies on SLR improves efficiency and consistency of approaches for assessing vulnerability to SLR; and

WHEREAS, senior staff from fifteen state agencies collaborated through the Sea-Level Rise Task Force (SLR Task Force) of the Coastal and Ocean Working Group of the state's Climate Action Team (CO-CAT), and the OPC's Science Advisory Team and the California Ocean Science Trust provided science-based responses to questions posed by the Sea-Level Rise Task Force; and

WHEREAS, the fifteen state agencies within the SLR Task Force reached agreement on an Interim Sea-Level Rise Guidance Document, which presented policy recommendations informed by science; and

WHEREAS, for projects that have a time horizon that extends beyond 2050, there is less certainty about SLR projections and SLR projections vary based upon how quickly the international community reduces greenhouse gas emissions; and

WHEREAS, research shows that the timing for reduction of greenhouse gas emissions has a significant impact on the amount of SLR that will occur by the end of the century and that emissions reductions early in this century will be much more effective in limiting sea-level rise than reductions later on; and

WHEREAS, adaptive capacity is the ability of a system to respond to climate change, to moderate potential damages, to take advantage of opportunities, and to cope with the consequences.

NOW, THEREFORE, the California Ocean Protection Council hereby

RESOLVES that state agencies are advised to consult and follow the recommendations contained in the SLR Task Force Interim Sea-Level Rise Guidance Document; and

FURTHER RESOLVES to base SLR assessments on current scientific projections of SLR and to support regular updates to guidance on SLR for state agencies based upon the latest research; and

FURTHER RESOLVES that at this time, state agencies are advised to use the SLR values presented in the December 2009 *Proceedings of National Academies of Science* publication by Vermeer and Rahmstorf[1] as a starting place (see attached Table 1) and select SLR values based on agency and context-specific considerations of risk tolerance and adaptive capacity; and

FURTHER RESOLVES that the timeframe identified for a project is important for SLR assessments and will affect the approach for assessing impacts, and that risk tolerance and adaptive capacity should be considered when selecting estimates of SLR; and

FURTHER RESOLVES that for projects that involve high consequences (high impacts and low adaptive capacity), it is advisable to avoid selecting SLR values that would result in high risk; for most situations this means it is advisable to avoid using low SLR values for high consequence projects; and

FURTHER RESOLVES that for projects that have a lifespan that extends beyond 2050, it is especially important to consider risk tolerance and adaptive capacity to guide decisions of whether to use low, medium, or high SLR projections; and

[1] Martin Vermeer and Stefan Rahmstorf, "Global sea level linked to global temperature", *Proceedings of the National Academy of Sciences*, published online before print December 7, 2009; doi: 10.1073/pnas.0907765106.

FURTHER RESOLVES that it is important for state agencies to coordinate with each other when selecting values of SLR and, where appropriate and feasible, use the same projections of SLR; and

FURTHER RESOLVES that for SLR estimates beyond two decades, linear extrapolation of SLR based on historic observations is inadequate and would likely underestimate SLR; and

FURTHER RESOLVES that prediction of future sea levels at a specific location will be improved if local and regional trends in sea level and land elevation are factored into the analysis; and

FURTHER RESOLVES that consideration should be given to the highest water levels projected within the lifespan of a project in order to assess impacts from extreme events such as those caused by storms during El Niño-Southern Oscillation events; and

FURTHER RESOLVES that California's very dynamic coast will respond to rising sea level differently depending upon local geomorphology, and assessments of impacts from SLR on shoreline projects should address local shoreline changes; and

FURTHER RESOLVES that it is important to reduce greenhouse gas emissions early in this century in order to limit the amount of damages from SLR that will occur as a result of rising temperatures; and

FURTHER RESOLVES that the OPC will continue to support climate change research and monitoring and support the development of common modeling assumptions so that planning actions in different agencies are based on shared information and current scientific understanding to the greatest extent possible.

Table 1. Sea-Level Rise Projections[2] using 2000 as the Baseline

Year		Average of Models	Range of Models
2030		7 in (18 cm)	5-8 in (13-21 cm)
2050		14 in (36 cm)	10-17 in (26-43 cm)
2070	**Low**	23 in (59 cm)	17-27 in (43-70 cm)
	Medium	24 in (62 cm)	18-29 in (46-74 cm)
	High	27 in (69 cm)	20-32 in (51-81 cm)
2100	**Low**	40 in (101 cm)	31-50 in (78-128 cm)
	Medium	47 in (121 cm)	37-60 in (95-152 cm)
	High	55 in (140 cm)	43-69 in (110-176 cm)

[2] For dates after 2050, Table 1 includes three different values for SLR - based on low, medium, and high greenhouse gas emission scenarios. These values are based on the Intergovernmental Panel on Climate Change emission scenarios as follows: B1 for the low projections, A2 for the medium projections and A1FI for the high projections.