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Friday, February 14, 2014

California Coastal Commission
c/o Sea-Level Rise Working Group
45 Fremont Street, Suite 2000
San Francisco, CA 94105

Subject: Comments on *Public Review Draft, Sea-Level Rise Policy Guidance*

Dear Sea-Level Rise Working Group:

Thank you for the opportunity to review the California Coastal Commission's *Public Review Draft, Sea-Level Rise Policy Guidance*, dated October 14, 2013. ESA is an employee-owned consulting firm that provides services in hydrology, hydraulic engineering, environmental documentation and permitting, geomorphology, and water resource planning and design for coastal, fluvial, and estuarine environments. In 2010, ESA merged with Philip Williams & Associates, Ltd (PWA), a recognized leader in tidal and coastal wetland restoration and shoreline management with over 30 years' experience in San Francisco Bay and on the California coast.

Please consider our comments on the Draft Sea Level Rise Guidance document.

1. The document is very helpful in clarifying what is expected with respect to consideration of sea level rise in Coastal Development Permits (CDP) and Local Coastal Plans (LCP). The document is also consistent with our understanding of State Policy, that sea level rise is an important consideration in planning and design of coastal development. Further, the technical content is consistent with the trajectory of coastal hazard mapping in California, and the public's valuation of natural resources, including public access and other ecosystem services provided by our coast. Thank you for your leadership!
2. Individuals not familiar with coastal process science and engineering may have difficulty understanding some of the language and may need help interpreting specific actions to take. Perhaps a less-technical summary for planners, and even the public, or other actions such as training workshops would facilitate implementation of these guidelines.
3. Consider allowing sea level rise scenarios to be developed in accordance with the US Army Corps of Engineers guidance, which includes the NOAA guidance on relative sea level rise and vertical land motion. We are not saying that we prefer this guidance to NRC (2012) but rather acknowledge that some projects will be required to follow this guidance and the uncertainty in sea level rise is large relative to differences in predictions by the two methods.
4. Consider allowing design based on shorter time frames, e.g. 2050, while requiring consideration of adaptive capacity or adaptive planning for time frames extending to 2100. This would presumably be a function of project design life, and the consequence of higher sea levels.
5. Consider providing preference to projects that restore natural shore processes and functions, in terms of allowing these projects to be implemented even if they may not be sustainable over longer time frames and greater sea level rise amounts.

6. Consider that additional guidance may be needed to address the implications of existing infrastructure on LCP planning. For example, a municipality may not have control over adaptation strategies employed for existing state roads, railways, utilities such as sewer facilities, and other infrastructure that is managed by special districts. The actions to be taken with these facilities may have more of an effect on future coastal conditions, yet the entities that have control over these facilities may not have a shore management responsibility or capability.
7. The State could provide more specific guidance for hazard mapping, vulnerability assessments and adaptation planning for these (CDP / LCP) and other planning and engineering projects and management plans. This recommendation may not be practical or appropriate for these guidelines. There are also other actions that the State could take to facilitate local and parcel level planning. For example:
 - a. The State could develop global sea level rise curves consistent with the NRC 2012 report for California regions, together with vertical land motion based on local data if significant relative to global sea level rise: For example, a table similar to Table 3 in the National Climate Assessment (NOAA, 2012).
 - b. The availability of coarse sand sources on State lands for beach nourishment could be investigated.
 - c. The effects of armoring on the shore could be described.
 - d. The need to consider shore evolution over time as a means for evaluating adaptation strategies could be articulated along with guidance.
 - e. There are other candidate “gaps” that are unlikely to be filled or acknowledged by municipal employees or project applicants.
8. There are a few specific comments:
 - a. For references to the Pacific Institute hazard mapping results (e.g. amount of erosion, flooding), should reference PWA 2009 and/or Revell *et al* 2011.
 - b. Reference to the Cal-Adapt website should clarify that the data source for the flooding maps was the Pacific Institute data sets to clarify that it is a single source. Cal-Adapt for whatever reason has never included the Pacific Institute derived coastal erosion hazard zones (e.g. table 14)
 - c. The recent IPCC document released in Oct 2013 should be mentioned in the sections related to the climate science of sea level rise.
 - d. Sample policy language might help local jurisdictions.
 - e. Coastal Regional Sediment Budget Plans may be useful references for LCPs, and perhaps even CDPs
 - f. Expansion of coastal zone boundaries may be needed.
 - g. Evaluation of adaptation strategies should include consideration of ecology and ecosystem services costs which are often “externalized” in traditional project analysis.
 - h. p.22 A.1. add General Plans
 - i. p.24 B.5. consider encouraging bonds up front to pay for repairs, removals as the structures become obsolete or fail.
 - j. p.24 B7. Last sentence. consider adding “or facilitate planned retreat/relocation.
 - k. p.31 bullet on Erosion. add citations of PWA 2009 and/or Revell *et al* 2011.
 - l. During Phase 5, the LCP development, jurisdictions may identify sections of shoreline that they may apply certain adaptation strategies compared to others (e.g. armor in one place in exchange for



- managed retreat). Perhaps some language similar to the State of Washington language on no net loss of ecological function would be helpful?
- m. For the steps 1-4 - specifically encourage analysis at regional scales with parcel level applications to identify effects and effectiveness of the proposed action
 - n. p.25 C.9. last sentence clarify “barriers”
 - o. p.25 C.10. consider discussing who is currently on the hook to pay for removal of derelict or structures that are no longer needed.
 - p. p.26 C.13. should reference be made to Division of State Lands?
 - q. table 4. revise the coastal resilience link to maps.coastalresilience.org
 - r. p.87 #6. add storm event monitoring data collection to support model refinements and calibration.
 - s. p.138. second paragraph. consider adding or size and frequency of cliff failures
 - t. table 13 and 14. add coastal resilience
 - u. p.141 bottom box clarify “seasonal erosion”

If you have any questions regarding these comments, please contact Bob Battalio at [REDACTED] and [REDACTED] Jeremy Lowe at [REDACTED] or David Revell at [REDACTED]. Jeremy is our primary point of contact for sea level rise topics.

Thank you for your consideration of these comments.

Sincerely,

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Vice President, Chief Engineer

Jeremy Lowe
Senior Coastal Geomorphologist

David Revell, PhD
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