



1836 State Street, Santa Barbara, CA 93101;  
PO Box 90106, Santa Barbara, CA 93190; Telephone (805) 965-7570; fax (805) 962-0651  
[www.healththeocean.org](http://www.healththeocean.org)

Wednesday, February 12, 2014

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

**Re: Draft Sea-Level Rise Policy Guidance**

Heal the Ocean (HTO), a Santa Barbara based citizens' action group focused on stopping sources of ocean pollution, appreciates this opportunity to offer input on the California Coastal Commission's Draft Sea-Level Rise Policy Guidance. As a member of the Santa Barbara County Integrated Water Management (IRWM) Steering Committee and Climate Change Sub-Committee we have done considerable work to include the subject of climate change and sea level rise in the Santa Barbara County IRWM Plan, for the purpose of identifying infrastructure work that may need funding because of coastal flooding.

Heal the Ocean has in fact been presenting research in both letter and PowerPoint to various agencies – City, County, State – on the issue of sea level rise and the threat it poses to coastal infrastructure, especially wastewater treatment plants (WWTPs). We believe this issue requires more attention from municipalities and wastewater districts, not only across the State, but nationally and internationally.

California faces serious risks due to climate change, and it is critical that the State continue its track record of leadership on this issue to ensure adequate preparation for the hazards associated with a warming planet. Heal the Ocean commends the Coastal Commission for recognizing the value of having a specific step by step process for planning and adapting to sea-level rise, and we feel the draft Sea-Level Rise Policy Guidance fills an important need. We are encouraged by the potential for this Policy Guidance to better protect vulnerable WWTPs to estimated sea level rise in the decades to come.

**General Comments**

Historically, WWTPs have been constructed close to the coastline and other waterbodies for ease of disposal of wastewater through outfalls; unfortunately, this has also made wastewater infrastructure susceptible to inundation and flooding from sea level and accompanying groundwater rise. The inundation of WWTPs due to the combination of sea level rise and more intense storms presents a serious public health concern as it increases the risk of untreated, or

partially treated, sewage entering coastal waters. These risks were made reality on the U.S. East Coast when Hurricane Sandy hit and, along with other catastrophic damage, caused the release of 11 billion gallons of sewage from WWTPs.<sup>1</sup>

Heal the Ocean is specifically concerned with adaptation – how flooding from a rising ocean will affect WWTPs along the Santa Barbara County south coast, from Carpinteria to Goleta, and elsewhere along the California coast (e.g., San Francisco). In August 2012, in response to the City of Santa Barbara’s draft Climate Action Plan (CAP) HTO submitted comments regarding the vulnerability of the City of Santa Barbara’s El Estero Wastewater Treatment Plant to estimated sea level rise.<sup>2</sup>

We have asked the City of Santa Barbara to more seriously address the vulnerability of its WWTP, which is situated in the low-lying Estero area of the Santa Barbara waterfront. We have presented numerous documents describing the threat sea level rise poses to Santa Barbara’s WWTP – including vulnerabilities described in the City’s own planning documents (pictured below). We also cited the Pacific Institute sea level rise study, which specifically calls out the El Estero treatment plant as one of the 28 WWTPs in California “vulnerable to a 100-year flood event with a 1.4 m sea-level rise.”<sup>3</sup> Finally, we have drawn attention to a sea-level rise vulnerability study conducted by UC Santa Cruz Professor Gary Griggs – included as an addendum in the City’s CAP – which states that “sea-level rise may necessitate the modification of plant facilities or operations in the *coming decades* [emphasis added].”<sup>4</sup> Given this evidence, and the usual length of the planning process, we have advised the City that it needs to take immediate, specific steps to address the risk of inundation of its WWTP.

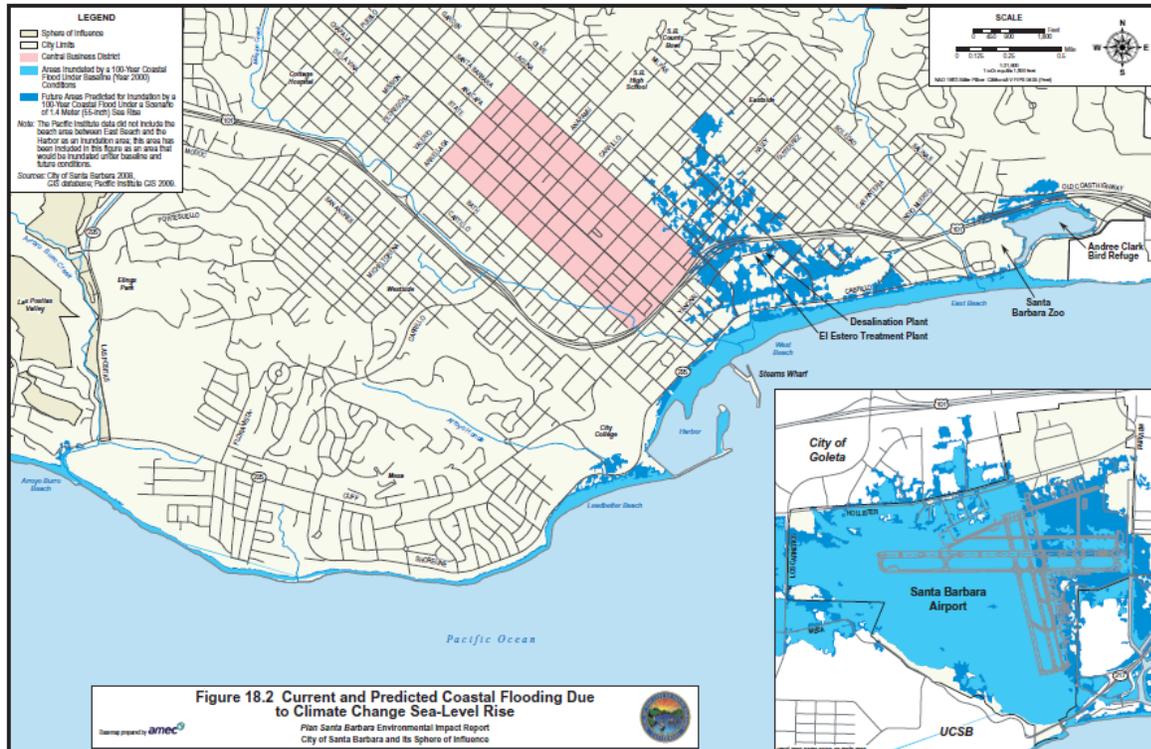
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<sup>1</sup> Kenward, Alyson, Daniel Yawitz, and Urooj Raja. *Sewage Overflows from Hurricane Sandy*. Climate Central, April 2013, p. 1. <<http://www.climatecentral.org/pdfs/Sewage.pdf>>.

<sup>2</sup> Heal the Ocean. *Re: Draft Santa Barbara Climate Action Plan*. August 2012. <[http://images.healtheocean.org/uploads/press/Santa\\_Barbara\\_Climate\\_Action\\_Plan\\_-\\_HTO\\_Comments\\_FINAL\\_8-6-2012.pdf](http://images.healtheocean.org/uploads/press/Santa_Barbara_Climate_Action_Plan_-_HTO_Comments_FINAL_8-6-2012.pdf)>.

<sup>3</sup> Heberger, Matthew, et al. *The Impacts of Sea-Level Rise on the California Coast*. The Pacific Institute, May 2009, p. 62. <[http://www.pacinst.org/reports/sea\\_level\\_rise/report.pdf](http://www.pacinst.org/reports/sea_level_rise/report.pdf)>.

<sup>4</sup> Griggs, Gary, and Nicole L. Russell (University of California, Santa Cruz). 2012. *City of Santa Barbara Sea-Level Rise Vulnerability Study*. California Energy Commission. Publication number: CEC-500-2012-XXX, p. 38. <<http://www.santabarbaraca.gov/NR/rdonlyres/D8DD2C50-3E0E-4DA5-A323-0C4F8B4CDF06/0/AppendixBwithCover.pdf>>.



**Figure 18.2 from Chapter 18 of Plan Santa Barbara.<sup>5</sup>**

We are pleased to see that the Coastal Commission has made it clear throughout the document that the vulnerability of critical coastal infrastructure in California, especially WWTPs, is serious. We think it's appropriate that WWTPs are used as examples in the Draft Policy Guidance to illustrate effective planning for sea level rise in Local Coastal Plans (LCPs) and Coastal Development Permits (CDPs). We believe the proactive approach the Commission has taken throughout this Policy Guidance will serve as a model for effective coastal management of sea level rise in California and beyond.

### Specific Comments

HTO would specifically like to call out areas of the Policy Guidance we find particularly strong, in addition to recommendations for improvement. (Excerpts from the document are *italicized* below):

#### Chapter III, Section C

P. 34: *Water quality (Section 30231): Coastal water quality could decrease due to inundation of toxic soils and an increase in nonpoint source pollution from flooding.*

Heal the Ocean appreciates the inclusion of toxic soils and nonpoint sources as a threat to water quality due to flooding caused by sea level rise.

<sup>5</sup> City of Santa Barbara. Certified Final Program Environmental Impact Report for the *Plan Santa Barbara* General Plan Update – Volume I. AMEC Earth & Environmental, Inc., Sept. 2010, p. 18-11.  
<[http://www.youplansb.org/docManager/1000000694/18.0\\_Global\\_Climate\\_Change.pdf](http://www.youplansb.org/docManager/1000000694/18.0_Global_Climate_Change.pdf)>.

PP. 34-35: *Sea-level rise could also lead to declines in coastal water quality in several other ways. First, rising seas could impact wastewater facility infrastructure near the coast. In addition to damaging equipment and blocking discharge from coastal outfall structures, floods could force facilities to release untreated wastewater, threatening nearby water quality (Heberger et. al., 2009).*

HTO supports the discussion in this section of the vulnerability of WWTPs and the threat of discharge of untreated sewage to water quality.

#### Chapter IV, Step 3

P. 43: *Consider coastal development and resources, including but not limited to:*

- *Existing and planned development*
- *Coastal-dependent uses such as harbors and wharfs*
- *Critical infrastructure such as wastewater treatment plants, transportation infrastructure, and electricity and other energy transmission infrastructure*

HTO also supports the inclusion of WWTPs as potentially at-risk critical infrastructure that should be considered in LCP planning for sea level rise.

#### Chapter VI, Step 4.2 - Hazards and Shoreline/Bluff Development

P. 53: *Protect function of critical facilities: Ensure critical facilities are able to function given sea-level rise. Use the upper range of sea-level rise as a minimum for siting and design of critical facilities. Consider developing a plan for relocation or retrofit of existing facilities located in hazardous areas (p. 53).*

HTO agrees with utilizing conservative sea level rise estimates for siting and design.

P. 53: *Site and design wastewater disposal systems to avoid risks from sea-level rise: Ensure wastewater disposal systems are not adversely affected by the effects of sea-level rise over the full life of the structure.*

We agree with this guidance to ensure the safety of new wastewater infrastructure projects.

#### Chapter VI, Step 4.6 - Water Quality

P. 60: *What should the updated water quality section include?*

While we support the elements included in Section 4.6, we believe this section could be improved by the addition of specific adaptation measures for vulnerable WWTPs, like relocating, retrofitting (waterproofing/strengthening), or raising facilities.

P. 60: *Clearly define areas at risk: The LCP should include an updated inventory of potential pollutant sources due to sea-level rise, including toxic waste sites, ocean outfalls and wastewater treatment facilities at risk of inundation, as well as aquifers and wells at risk of saltwater intrusion.*

Several studies have documented the potential for groundwater levels to rise in tandem with sea levels and exacerbate flood risks.<sup>6,7</sup> HTO believes LCPs throughout the State should account for this risk of flooding since it poses a dual water quality threat with the potential for flooding of underground infrastructure, like sewer lines, along with the release of contaminants from toxic groundwater sites. In our address to the City of Santa Barbara regarding its Climate Action Plan, we addressed the potential flooding of the City’s toxic groundwater sites, and produced an approximate overlay (pictured below) of those sites from the State’s Geotracker database along with the City’s estimated sea level rise map to illustrate the risk.

### Objective 3.2 – Assess Coastal Resource Vulnerabilities to Guide Development of Priority Coastal Adaptation Planning Strategies

*P. 89: Work with the Department of Water Resources, SWRCB and local agencies to assess and address water and wastewater treatment plant vulnerabilities along the coast.*

HTO strongly encourages the Coastal Commission to implement this “next step” and work toward greater inter-agency collaboration and guidance on WWTP vulnerability.

### Chapter VII, Additional Items

*P. 90: Guidance on managed retreat of critical infrastructure, including when to consider managed retreat rather than continue with repairs and maintenance in light of sea-level rise.*

We encourage the Coastal Commission to implement this recommendation on guidance for “managed retreat” as quickly as possible. We believe the Santa Barbara region’s debate and struggle over the Goleta Beach Park strongly indicates the need for greater direction from the Coastal Commission on managed retreat of not only critical infrastructure, but coastal infrastructure in general. A standardized process for evaluating the need for managed retreat would give local and county governments greater assistance in addressing sea level rise.

### Appendix C. Adaptation Measures

*PP. 158-159: Table 20. Measures for Water Quality/Water Supply Management.*

As described above in our comments on Chapter IV, Section 4.6 regarding the importance of adaptation measures for water quality, this table should also include relocating, retrofitting, or raising WWTPs.

*P. 158: LCPs can include policies that require green infrastructure be used whenever possible in lieu of hard structures. Incorporate sea-level rise and extreme storms into the design.*

In the face of more intense storms due to climate change, we agree with the Coastal Commission including green infrastructure as a critical adaptation measure to support water quality. Such

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<sup>6</sup> Rotzoll, Kolja, and Charles H. Fletcher. *Assessment of groundwater inundation as a consequence of sea-level rise*. Nature Climate Change. November 2012, p. 477-481.

<<http://www.nature.com/nclimate/journal/v3/n5/full/nclimate1725.html>>.

<sup>7</sup> Bjerklie, D.M., Mullaney, J.R., Stone, J.R., Skinner, B.J., and Ramlow, M.A., 2012, *Preliminary investigation of the effects of sea-level rise on groundwater levels in New Haven, Connecticut*. U.S. Geological Survey Open-File Report 2012–1025, 46 p. <<http://pubs.usgs.gov/of/2012/1025/>>.



Figure 18.2 from Chapter 18 of Plan Santa Barbara<sup>8</sup> Superimposed over Santa Barbara Geotracker Map

<sup>8</sup> City of Santa Barbara. *Certified Final Program Environmental Impact Report for the Plan Santa Barbara General Plan Update – Volume I*. AMEC Earth & Environmental, Inc., September 2010, p. 18-9.

<[http://www.youplansb.org/docManager/1000000694/18.0\\_Global\\_Climate\\_Change.pdf](http://www.youplansb.org/docManager/1000000694/18.0_Global_Climate_Change.pdf)>.

infrastructure allows greater infiltration and can reduce the risks of untreated sewage discharge during significant rain events within combined sewer systems (i.e., combined sewer and stormwater systems). Similarly, measures to reduce infiltration/inflow of rainwater/groundwater into separate sewer systems (and also combined sewer systems) can reduce the impact of more intense storms by reducing the risks of overflows from sewer mains as well as overloading the capacity of WWTPs. We recognize this Policy Guidance is focused primarily on sea level rise, but since Table 20 and other parts of the document address water quality threats from influxes of stormwater into combined sewer systems via green infrastructure, we believe the Commission should include recommendations for LCPs regarding greater infiltration/inflow of rainwater due to climate change. Recommendations could include improved maintenance procedures for public sewer mains, policies to address impaired private sewer laterals, and other proactive measures.

## Conclusion

Heal the Ocean thanks the California Coastal Commission for its Sea-Level Rise Policy Guidance, because it represents a proactive approach for addressing expected impacts caused by a changing climate. It is commendable that the Coastal Commission has made the vulnerability of wastewater plants and other critical infrastructure a priority throughout this important document, and we hope the Commission will consider our specific recommendations to strengthen this document further.

To recap our recommendations:

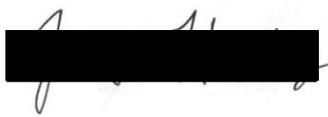
- **More clearly spell out some of the potential adaptation measures for vulnerable WWTPs, like relocating, retrofitting (waterproofing/strengthening), or raising facilities;**
- **Add recommendations for LCPs to include measures to address greater infiltration/inflow of rainwater into sewer systems due to climate change;**
- **Include guidance for LCPs on the water quality risks and vulnerability of toxic groundwater sites and underground infrastructure to rising groundwater levels accompanying sea level rise;**
- **And finally, proceed as quickly as possible with the Commission's own recommendation for greater guidance on managed retreat of coastal infrastructure.**

Again, thank you for this opportunity to comment.

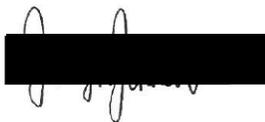
Sincerely,



Hillary Hauser, Executive Director



James O. Hawkins, Policy Analyst



Jaelyn Johnson, Research Associate