

Policy Analysis of the City of Huntington Beach's General Plan Coastal Element



Figure 1. Sand Replenishment

Problem

Climate change is reshaping California's coastline. The increasing burning of fossil fuels continuously emits greenhouse gases that warm the atmosphere, melt ice caps, and acidify and warm the ocean. This series of events is raising the sea level and putting coastal communities at risk of eroded coastlines, episodic flooding, and increased risk of storms. Sea levels have risen by 6.5 inches since 1950, however, almost half of that rise has occurred rapidly in the last 20 years. At the rate at which emissions are being released and the climate is warming, the U.S. Global Change Research Program projects the coastline to rise 10-12 inches by 2050, rising faster than ever seen before. This is significant because Huntington Beach's Coastal Element has not been updated since 2001, making the policies equipt for 24 years ago. However, with such drastic changes in the global climate and sea level rise, this element is not prepared to face the current state of the coast and the consequences to come.

Purpose

The purpose of this study is to evaluate the effectiveness and relevance of the City of Huntington Beach's General Plan Coastal Element in addressing the accelerating impacts of sea level rise. Specifically, this research aims to determine whether the goals, objectives, and policies established in the Coastal Element—originally adopted and amended in 2001—remain viable in the face of current and projected coastal challenges associated with climate change. This study is rooted in the need to assess policy resilience over time. As sea level rise increasingly threatens coastal communities throughout California, there is an urgent necessity to ensure that municipal planning documents remain adaptive, forward-thinking, and grounded in the latest environmental data and sustainable design practices. Through a detailed analysis of the Coastal Element and its associated Local Coastal Program and Wetland Restoration Plan, this research will identify gaps between policy intentions and on-the-ground outcomes observed over the past two decades. By comparing stated objectives with their implementation and measurable impact, the study will highlight both strengths and deficiencies in Huntington Beach's coastal management strategies. The findings will inform recommendations for enhancing shoreline protection and infrastructure resilience through updated, sustainable, and climate-adaptive planning. This work serves as a critical step in supporting local policymakers, planners, and stakeholders in creating a more sustainable and protected coastal future.

Methodology

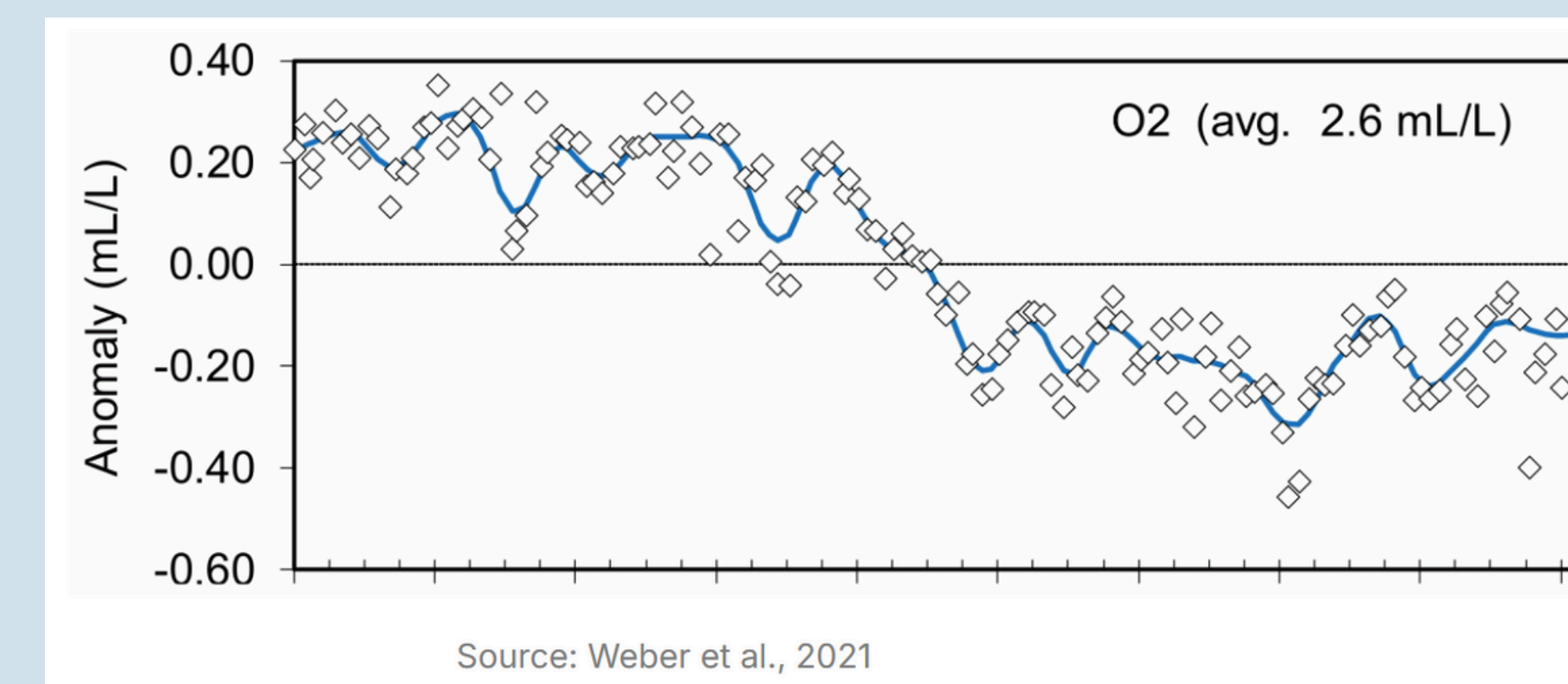
This study will utilize a qualitative policy analysis approach, with primary data derived from a comprehensive review of the Huntington Beach General Plan Coastal Element. The objective of this analysis is to identify which goals, objectives, and policies remain effective in addressing coastal challenges, and which components are outdated or insufficient in the context of current environmental threats, particularly sea level rise. To contextualize the findings and ensure alignment with broader regulatory frameworks, the study will also further examine the California Coastal Act, which provides statewide guidance for coastal zone management. This will help establish a benchmark for evaluating how well Huntington Beach's local policies conform to California's coastal protection standards. The 2024 State of California Sea Level Rise Guidance Update will also be analyzed. This document incorporates the latest scientific research, engineering standards, and policy recommendations, and will serve as a critical tool for informing updates to Huntington Beach's coastal planning framework. This methodology aims to support the development of a more adaptive, resilient, and forward-looking Coastal Element.

Recommendations

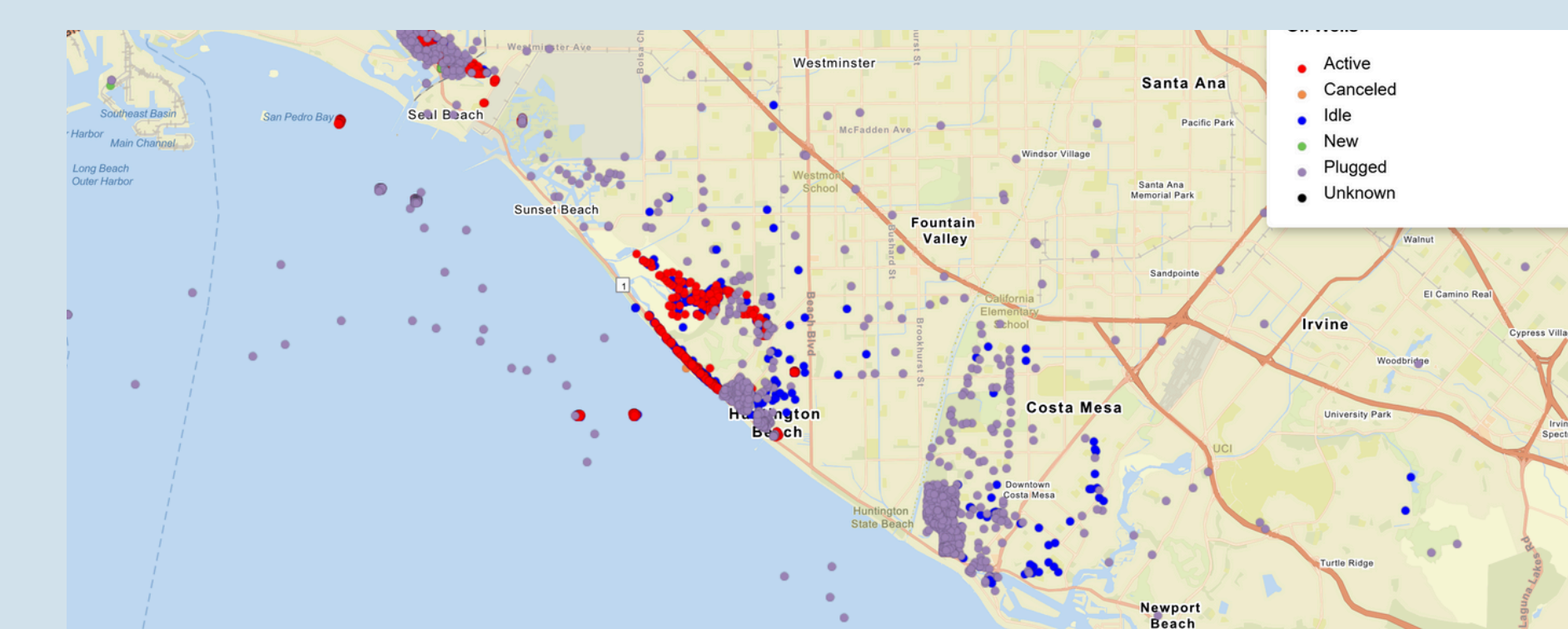
- 1) Retrofit Huntington Harbour with solar-powered aeration and water circulation systems in critical zones to prevent hypoxia. (so when levels fall below standards, there is an aeration of the water to aid the hypoxia and fulfil the previous objective.
- 2) Reestablish the partnership with the Army Corps of Engineers to bring the sand replenishment and monitoring back to Huntington, to help mitigate sand erosion and shortening of beaches. Figure 1
- 3) Implement a stricter policy relating to oil rigging in Huntington Beach. While it can be difficult to terminate existing active oil wells, implement a moratorium on new offshore drilling. Track how many existing wells get plugged, and if new ones are drilled to hold the city accountable.
- 4) With the addition of the sand replenishment program, upgrade pump stations, tidal gates, and existing canals using updated sea-level rise modeling from California's Ocean Protection Council, addressed in California's Sea Level Rise Guidance. Again prioritize the health of wetland restoration and preservation, they are the largest natural flood buffer. Figure 2
- 5) Update the Bluff setback standards in new policy. Revise setback policy to be based on erosion modeling in Huntington Beach under "high sea level rise" scenarios as seen in California's Sea Level Rise Guidance. Require re assessment of existing structures and developments on sea bluff. In updated costal element, establish no development buffer zones in high risk areas, to hold developers accountable as well has developments safe.

Findings/ Discussion

- 1) Dissolved oxygen levels have fallen below the current minimum standards, and mitigation measures have not been implemented.



- 2) Coastal erosion is eating away at all of the beaches. The beaches along Huntington are in need of sand replenishment, as there haven't been any programs or mitigation for 10 years.
- 3) Public health, safety, and welfare are jeopardized by the number of active oil wells in Huntington Beach, especially right on the coastline



- 4) The city's portion of the flood control system is no longer protecting the community from flooding, due to shorter beaches, eroded wetlands, and higher sea levels than 2001 levels accounted for.
- 5) Setbacks set in 2001 are not able to withstand the near-future sea bluff erosion, meaning developments and buildings on said sea bluffs are not safe.

Conclusion

This study has critically examined the City of Huntington Beach's Coastal Element and Wetland Restoration Plan to assess whether current policies are sufficient to meet the challenges posed by a changing climate. By analyzing the stated goals and objectives alongside their real-world implementation and outcomes, the research identifies both effective strategies and critical gaps that undermine the city's coastal resilience. Findings reveal a pressing need for the Coastal Element to be updated to align with the most recent science, particularly as outlined in the 2024 State of California Sea Level Rise Guidance. A revised Coastal Element must go beyond reactive measures and embrace a forward-looking, adaptive strategy that integrates sustainable infrastructure, ecological restoration, and community protection. Ultimately, Huntington Beach stands at a crossroads. Ensuring the city's long-term resilience requires a Coastal Element that not only addresses today's vulnerabilities but is also robust enough to adapt to tomorrow's uncertainties. This study underscores the importance of policy modernization as a foundation for safeguarding both the natural environment and the wellbeing of future generations in the face of continued sea level rise.

Figure 2. Venice Sea Level Rise Vulnerability Assessment Example

