

THE IMPACTS OF SEA-LEVEL RISE ON THE CALIFORNIA COAST

A Paper From:
California Climate Change Center

Prepared By:
**Matthew Heberger, Heather Cooley,
Pablo Herrera, Peter H. Gleick, and Eli
Moore of the Pacific Institute**

DISCLAIMER

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DRAFT PAPER



Arnold Schwarzenegger, Governor

March 2009
CE C-500-2009-024-D

Laguna Beach



Ocean Beach, San Francisco



Transportation Impacts

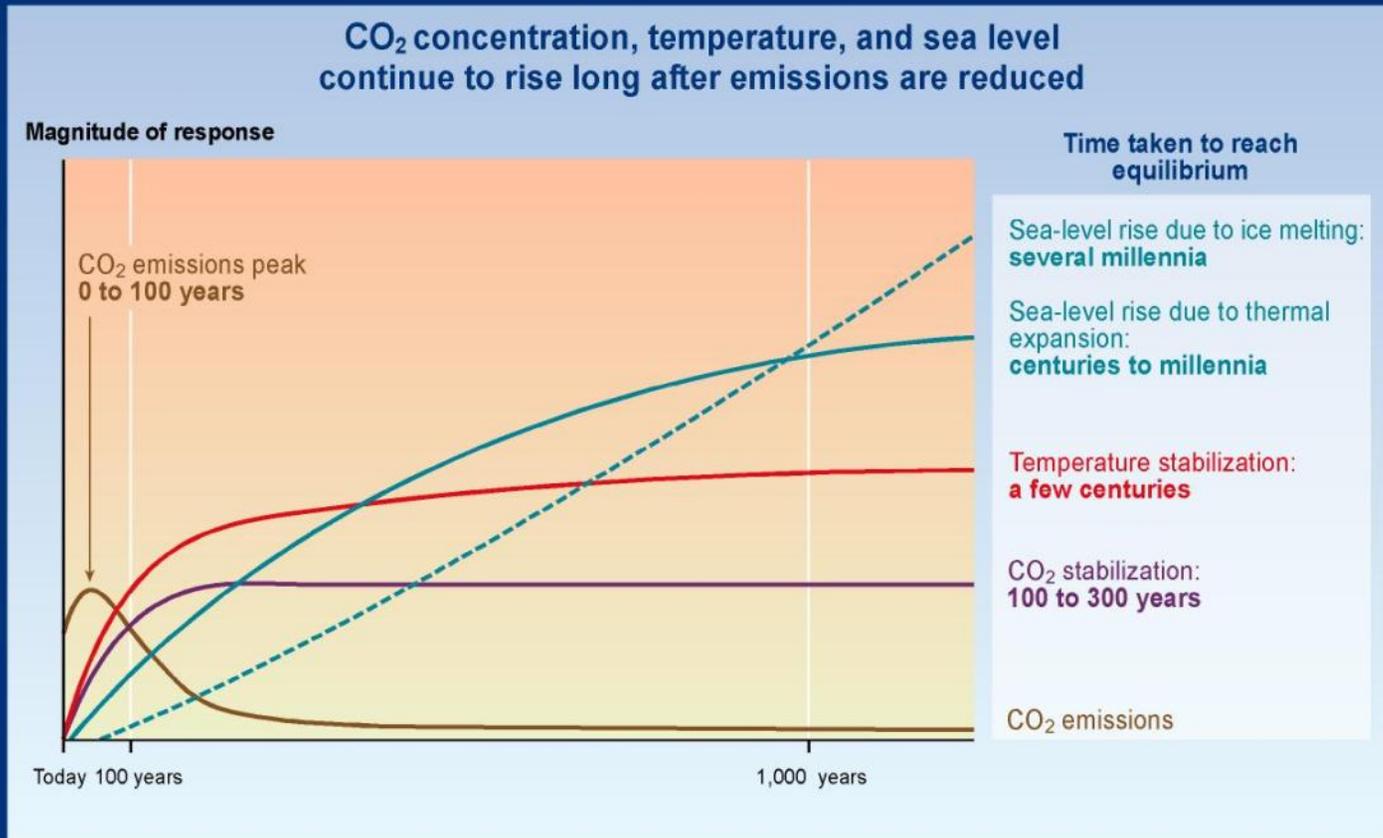


Airports – SFO & OAK



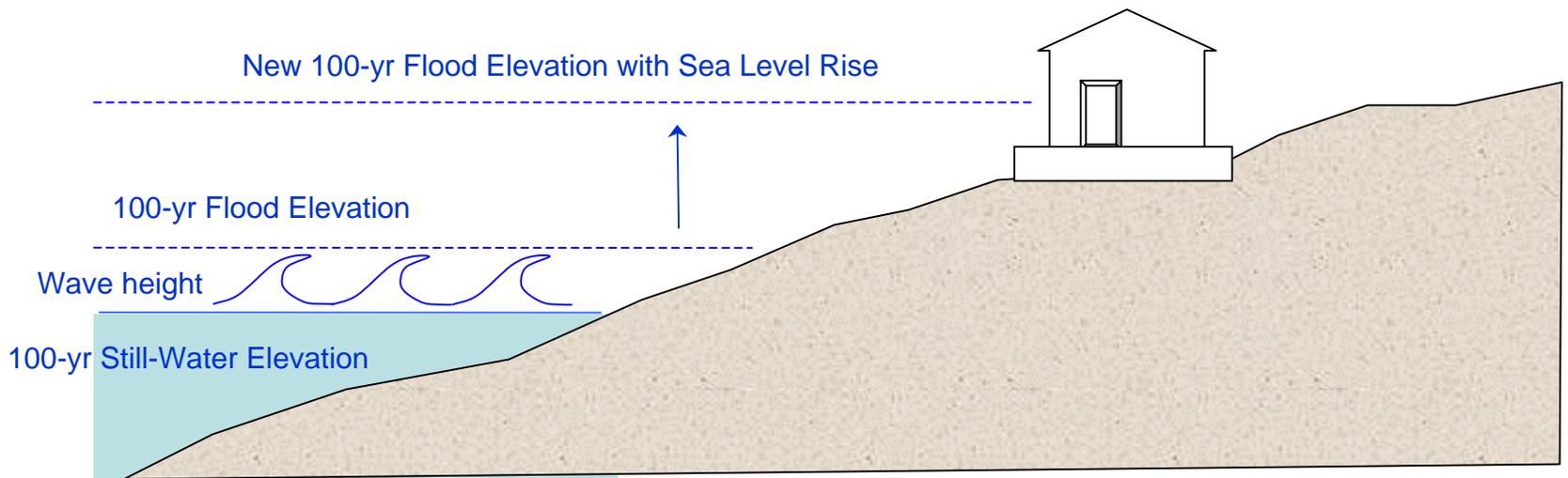
Michael Macor / The Chronicle

Adaptation is a Necessity

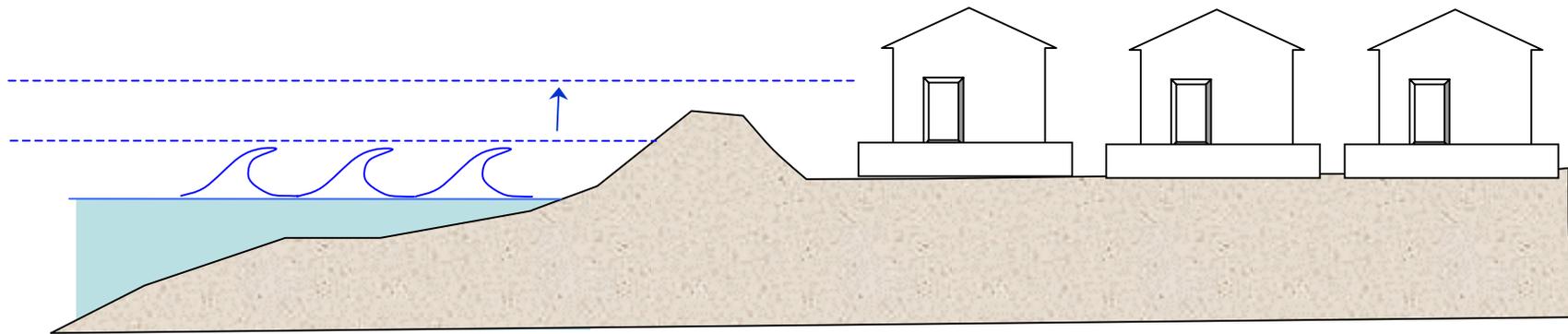


SYR - FIGURE 5-2

Estimating Flood Damages



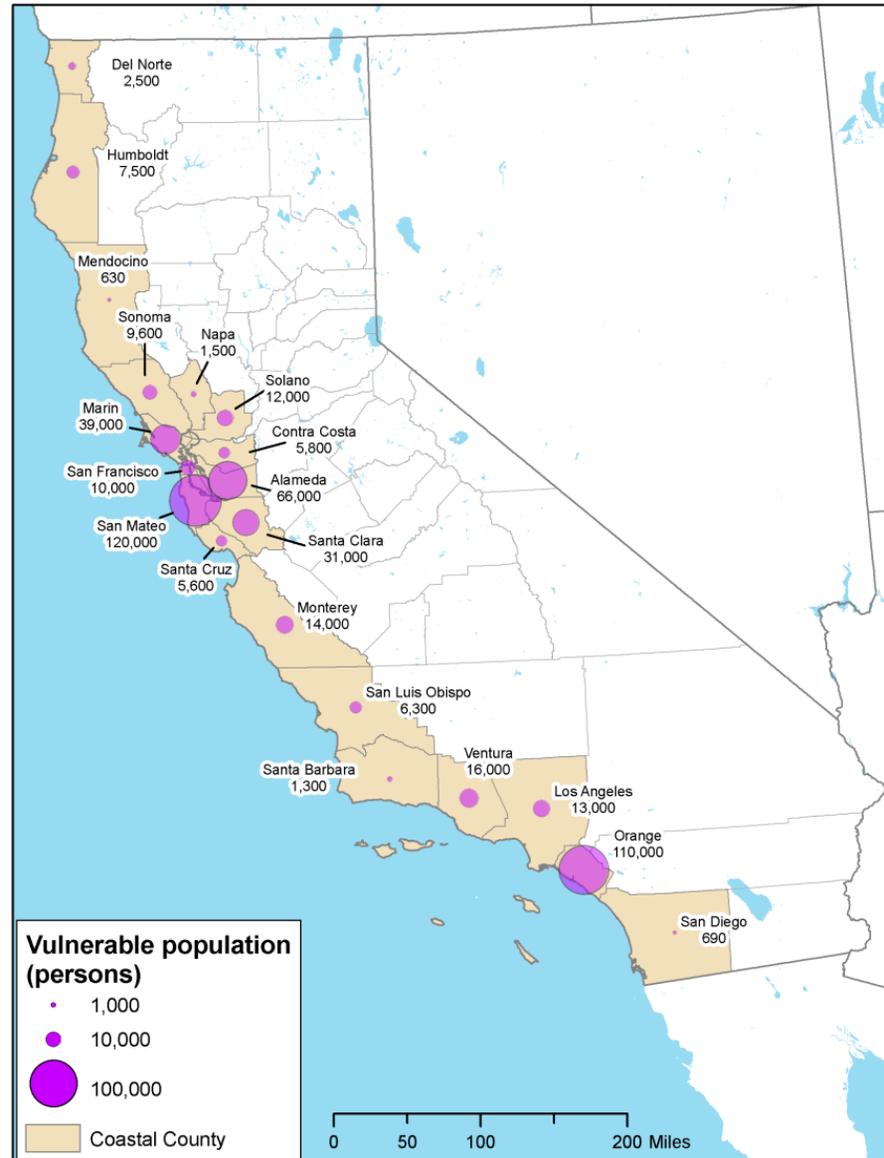
Existing Development Behind Levees



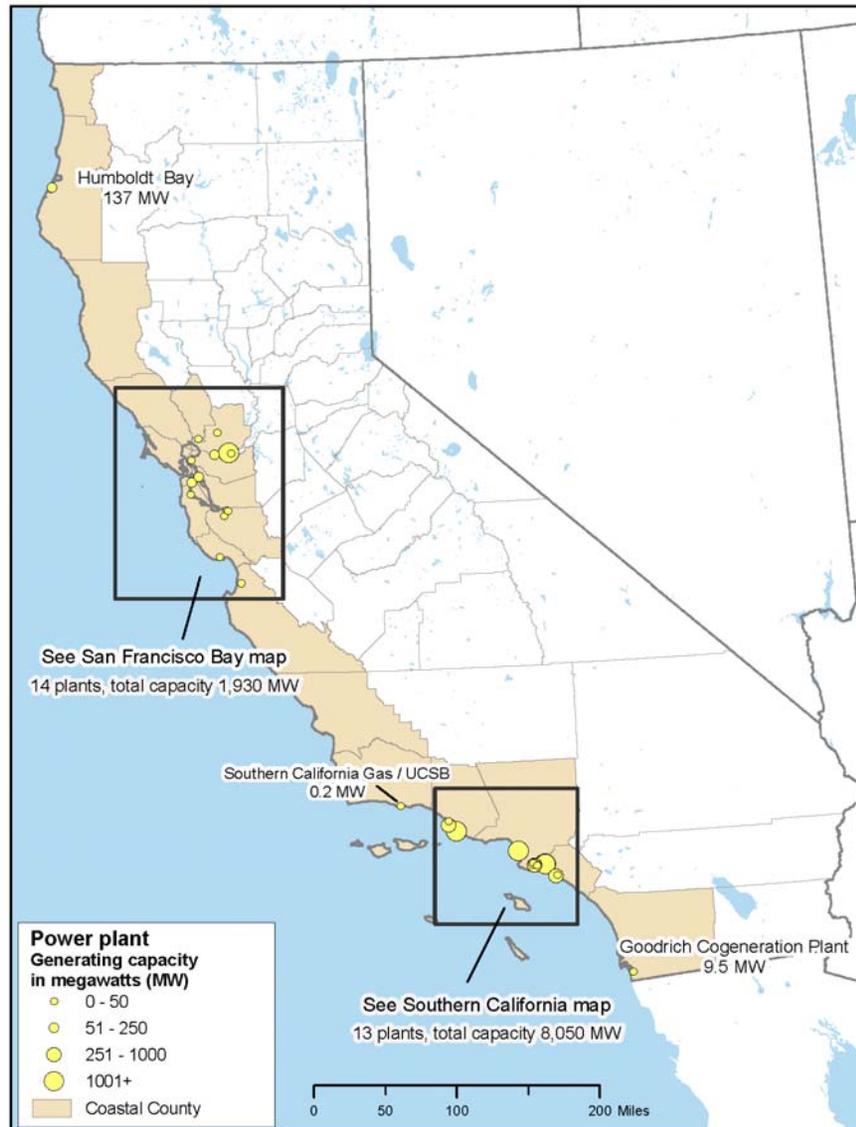


Michael Macor / The Chronicle

Population at Risk



Vulnerable Power Plants



Vulnerable Wastewater Treatment Plants



Other Infrastructure at Risk

- Roads: 1,600 miles
- Railroads: 170 miles
- Schools, Police Stations, Fire Stations
- Parks, airports, bridge access, coastal wetlands, etc.

Google Map at www.pacinst.org

Google Map - Sea Level Rise on the California Coast - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.pacinst.org/reports/sea_level_rise/gmap.html

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Impacts of Sea Level Rise on the California Coast

Areas and infrastructure vulnerable to flooding and erosion

[Zoom In](#) [Zoom Out](#) [Map](#) [Hybrid](#) [Satellite](#)

Hazard Zones

- Flooding
 - Approximate 100-yr coastal flood
 - +1.4 meter sea level rise
- Erosion
 - Erosion hazard zone, high scenario (Draft, subject to further review)

Opacity

Clear 1/4 1/2 3/4 Solid

Infrastructure at Risk

- Health-care facilities
- Schools
- Police stations
- Fire stations

Map data ©2009 Tele Atlas - Terms of Use

Done

Policy and Management Recommendations

1. Limit development in areas at risk from rising seas
2. Protect adjacent uplands to keep options open.
3. Integrate future sea level rise into coastal policies.
4. Review flood insurance programs in light of SLR
5. Cost-benefit analyses should explicitly evaluate the social, recreational and environmental tradeoffs of adaptation strategies.

Climate-Proof “No Regrets” Design



Coastal Armoring Tradeoffs



Source: California Coastal Records Project

Coastal Armoring Tradeoffs



Conclusions

- Climate change will inevitably change the character of the California coast, so we must begin to adapt
- We can expect increased flooding and erosion
- Large populations and extensive infrastructure will be at risk
- We can armor the coast to defend lives and property, but this will come at a financial and environmental cost