

SURVIVING THE STORM

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#SurvivetheStorm



GLOBAL MEGA STORMS:

New Orleans 2006



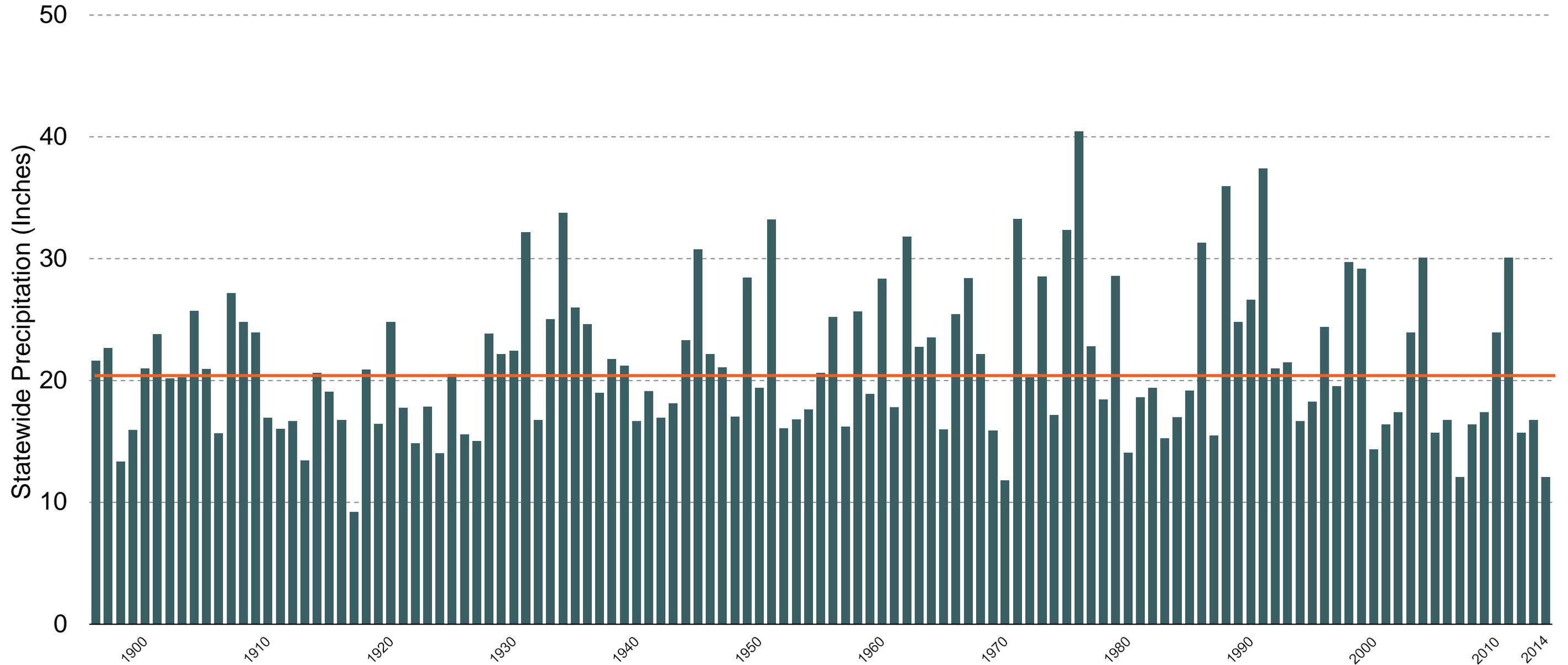
New Jersey 2012



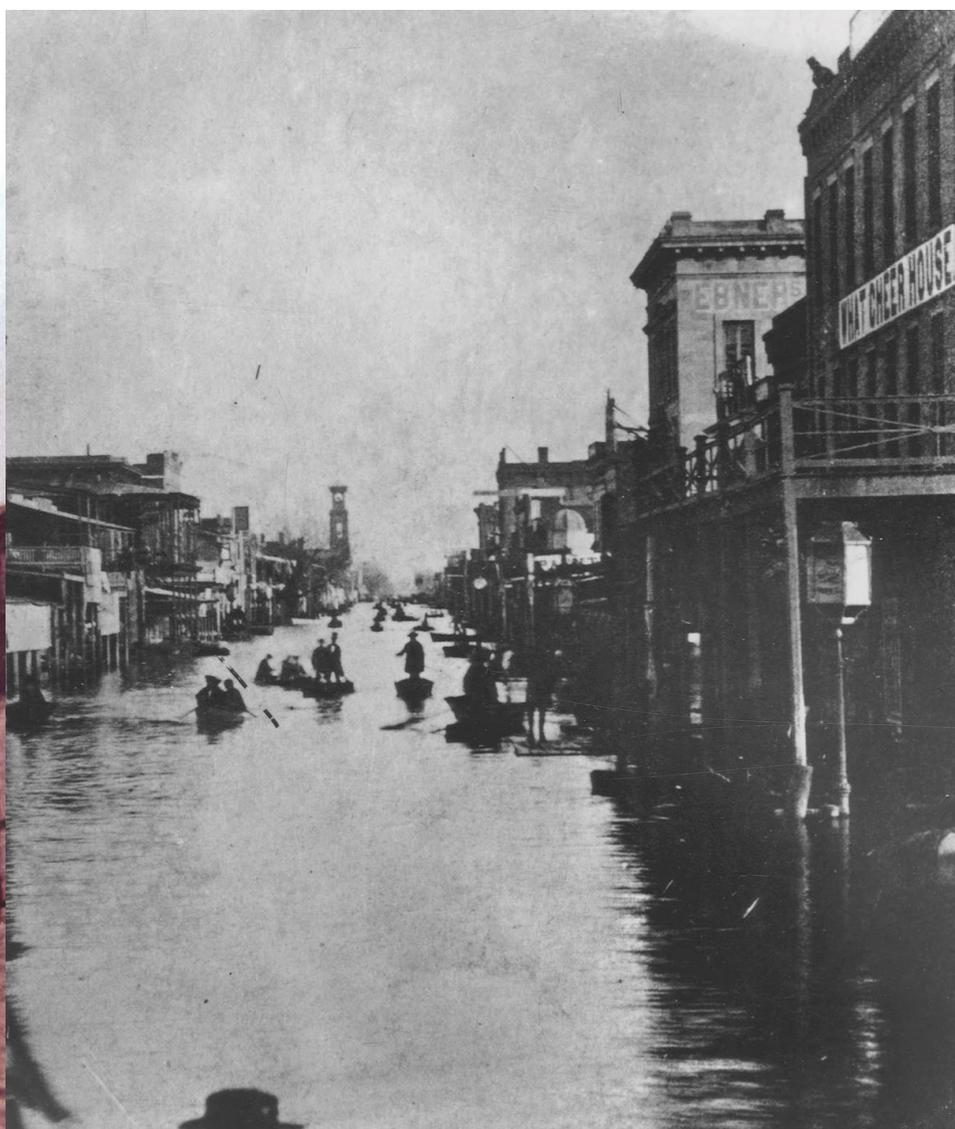
Philippines 2013



CALIFORNIA'S HISTORIC ANNUAL PRECIPITATION:



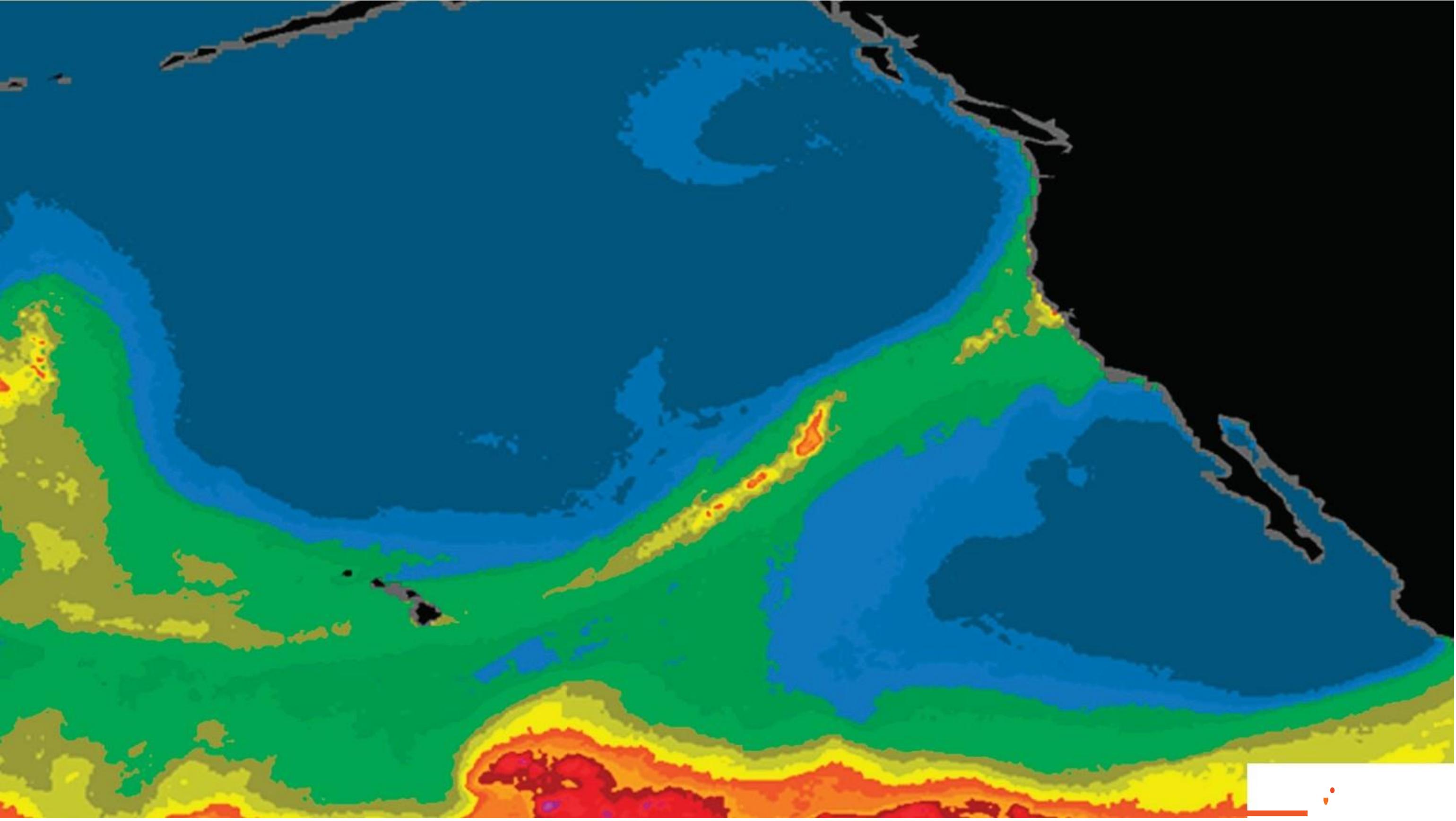
GREAT FLOOD OF 1862:



BAY AREA AT RISK

355,000 residents, **\$46.2 billion** in structures and contents are located in the region's 100-year floodplain





STORM SUMMARY

- > Approximate 150 year return period
- > Up to 12 inches of rain over 4 to 7 days*
- > Elevated creek and river flows lasting over one week; peak flood flows last one day
- > High tide in the Bay based on maximum observed tide which occurred in January 1983
- > Area inundated by flood waters based on computer analysis of flood flows and a review of FEMA flood maps and other flood studies

*Varies by sub region, i.e., North Bay, East Bay, San Francisco, Peninsula, and South Bay

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SUMMARY OF DAMAGES BAY AREA

(MILLIONS OF DOLLARS)

Damage Category	Estimated Damages
Structural damages	\$5,932
Content damages	\$4,180
Air transportation delay damages	\$86
Road transportation delay damages	\$78
Electricity service interruption costs	\$125
Total	\$10,401

COST OF INACTION

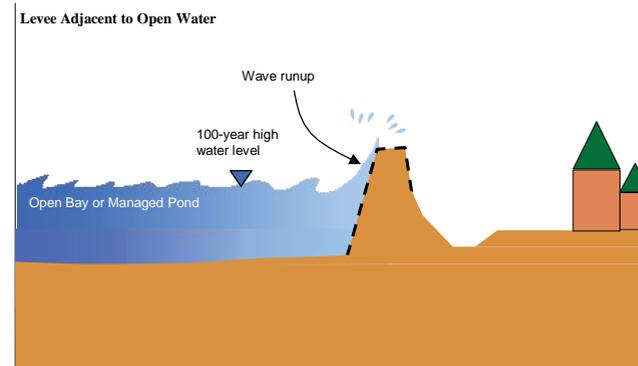
DOES NOT INCLUDE:

- > highway or airport repair costs,
- > loss of life,
- > potentially catastrophic effects of levee failure in the Sacramento-San Joaquin Delta,
- > flood-related damage to communications facilities

Will be exacerbated by sea-level rise

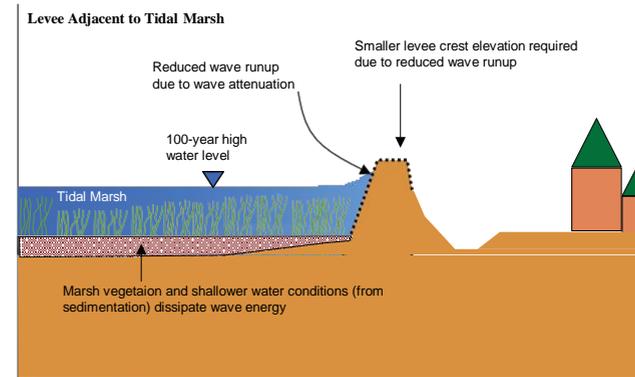
California is vulnerable to storms larger than the one modeled

BAY



Traditional Levee without Wetlands (Grey Infrastructure)

Source: South Bay Salt Pond Restoration Project



Traditional Levee with Wetlands (Green + Grey Infrastructure)

Source: South Bay Salt Pond Restoration Project



Seawalls (Grey Infrastructure)

Source: Dave Rauenbuehler



Horizontal Levee (Green + Grey Infrastructure)

Source: The City of San Jose

RIVER/
CREEKS



Bioswale (Green Infrastructure)

Source: SFPUC



Storage Tunnels (Grey Infrastructure)

Source: SFPUC



Green Streets (Green Infrastructure)

Source: SFPUC

GENERAL RECOMMENDATIONS

Infrastructure

Support the development of cost-effective structural and non-structural strategies, tailored to the region's variety of local environments, to reduce flood risk.

Funding

Identify new and expand existing local, regional, state and federal funding for flood infrastructure investment.

Prioritization

Identify and prioritize projects necessary to protect key economic assets such as transport, power, water, wastewater, employment centers, and communications infrastructure.

Also: Local , Regional, State and Federal Recommendations

Planning

- Incorporate community resilience to extreme storms into Hazard Mitigation and General Plans.
- Identify ways to leverage new development under regional growth plans to provide local flood protection and reduce economic vulnerability.
- Incorporate climate change predictions, including sea-level rise and changes in rainfall, into flood risk analyses.

Early Warnings

Support development of accurate weather and flood forecasting, particularly for lead time on atmospheric rivers.

OUR BAY ON THE BRINK

FLOOD
RISK

POLLUTION &
CONTAMINATED FISH

THE
SOLUTION



THE BAY IS THE
HEART OF THE REGION,
OUR ECONOMY, AND OUR WAY OF LIFE.

But Bay Area
families and
businesses are
AT RISK...