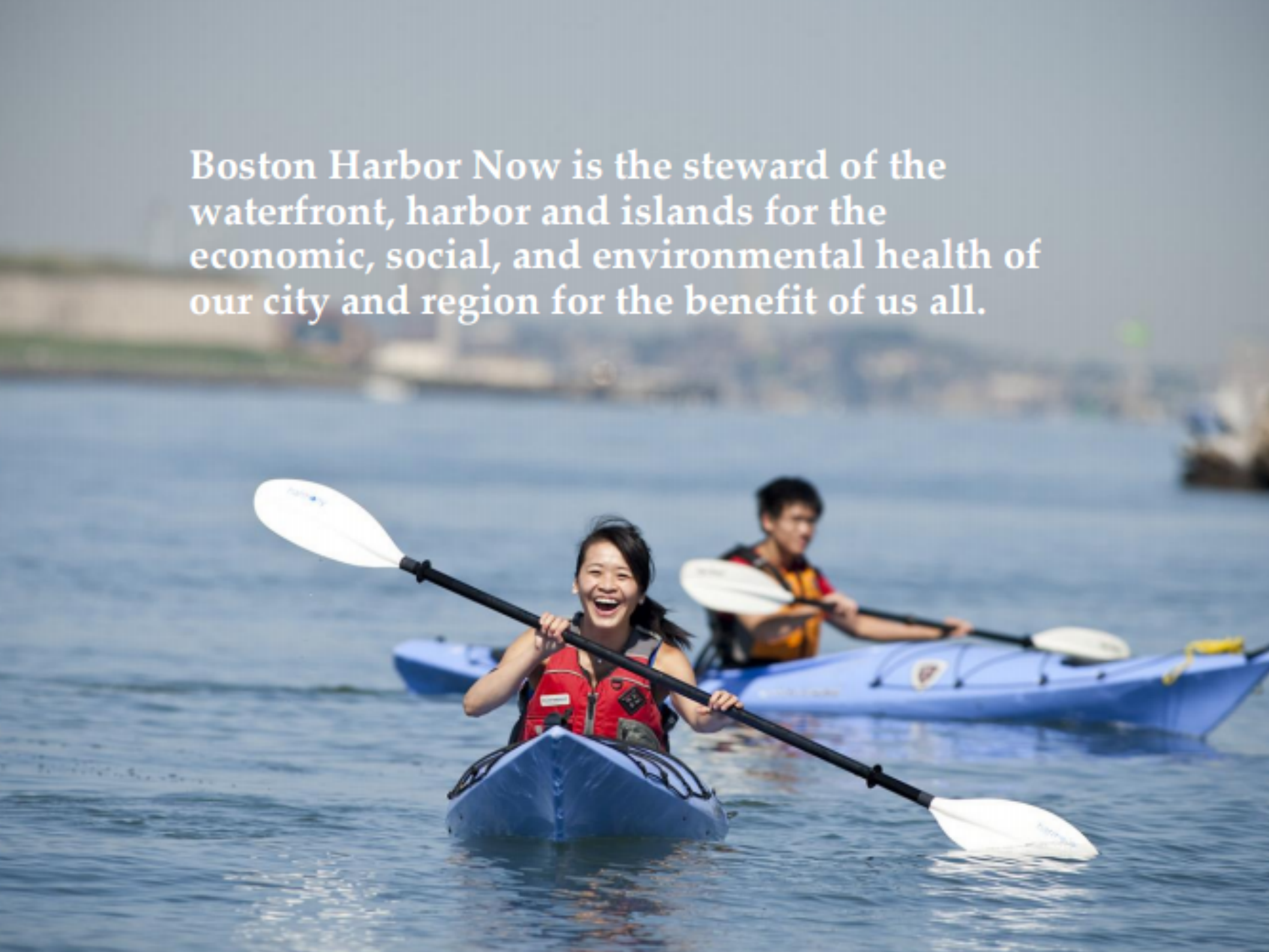

BOSTON
HARBOR
NOW
WELCOME MERCK FAMILY FUND!

BOSTON HARBOR NOW

The Boston Harbor Association
A Voice for the Harbor

BOSTON HARBOR ISLAND ALLIANCE

Boston Harbor Now is the steward of the waterfront, harbor and islands for the economic, social, and environmental health of our city and region for the benefit of us all.



BOSTON HARBOR NOW GOALS:

- Providing waterfront and island programming that is accessible to all while increasing equitable access for our people and the vitality of our places;
- Promoting sustainable waterfront policies and planning as part of enhanced waterfront development;
- Increasing affordable public access to the waterfront and the islands by bringing Boston's water transportation system to scale;
- Investing in a robust, innovative working port that provides well-paying jobs as well as goods and services to the entire region, and
- Providing leadership and serving as a national model for climate resilience while helping to prepare Boston's waterfront neighborhoods for increased coastal flooding.

Managing Boston's Wet Future

Julie Wormser
Boston Harbor Now

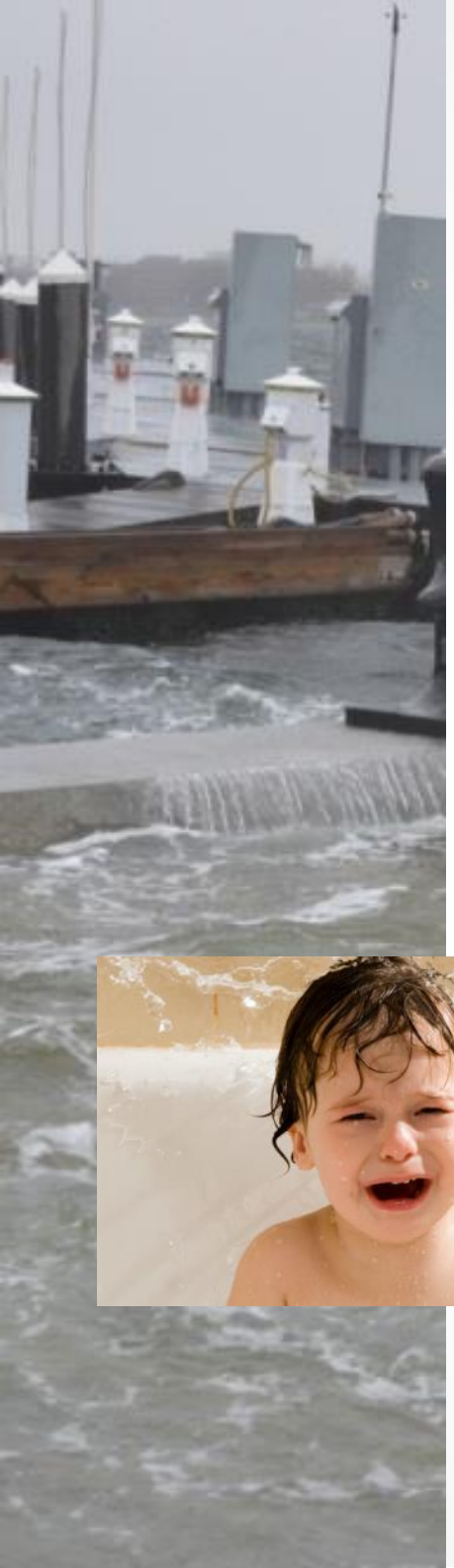
Superstorm Sandy


Rt.12
Outer Banks

Lower Manhattan


Breezy Point

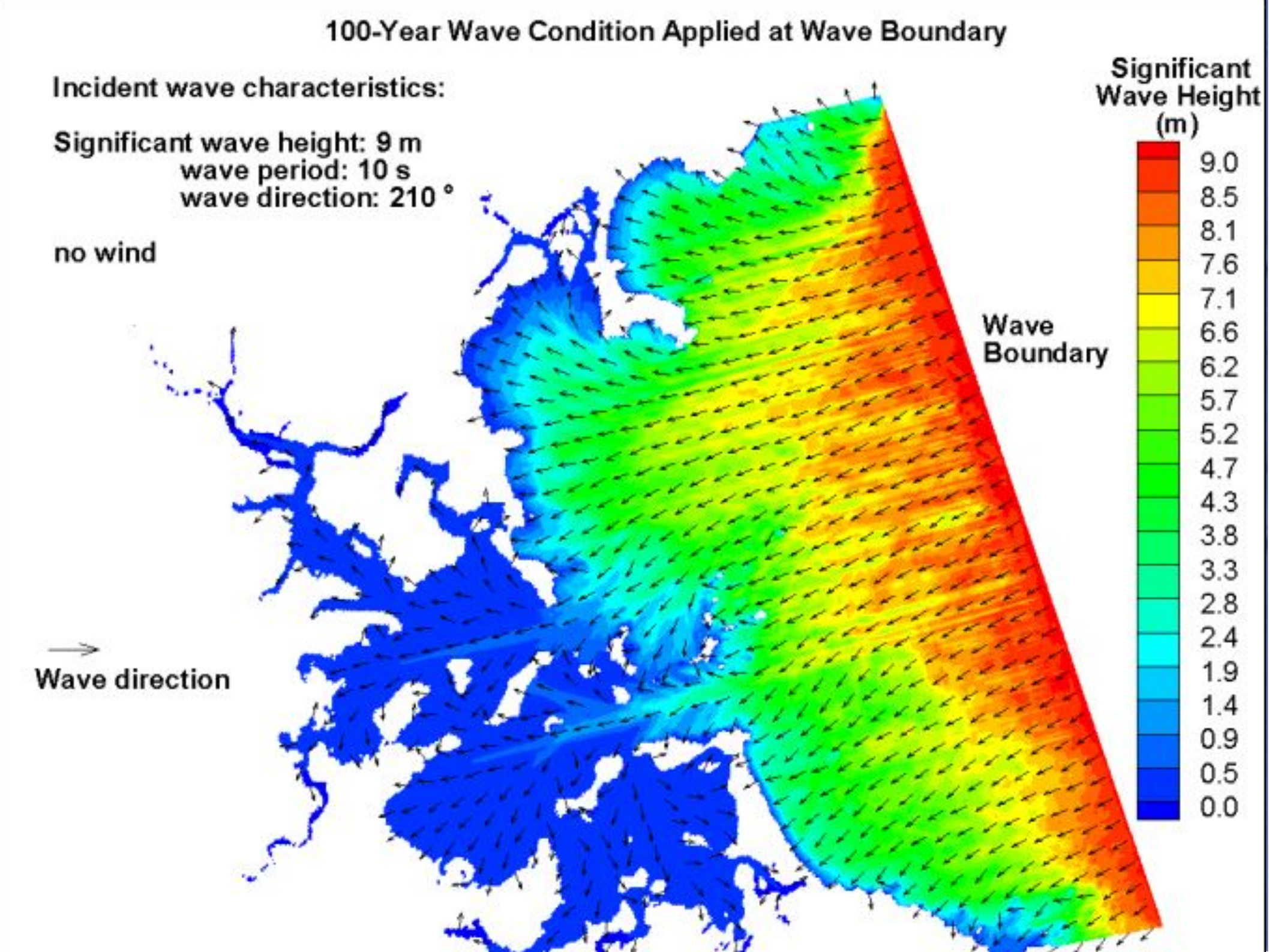
Boston's Waterfront, October 29, 2012

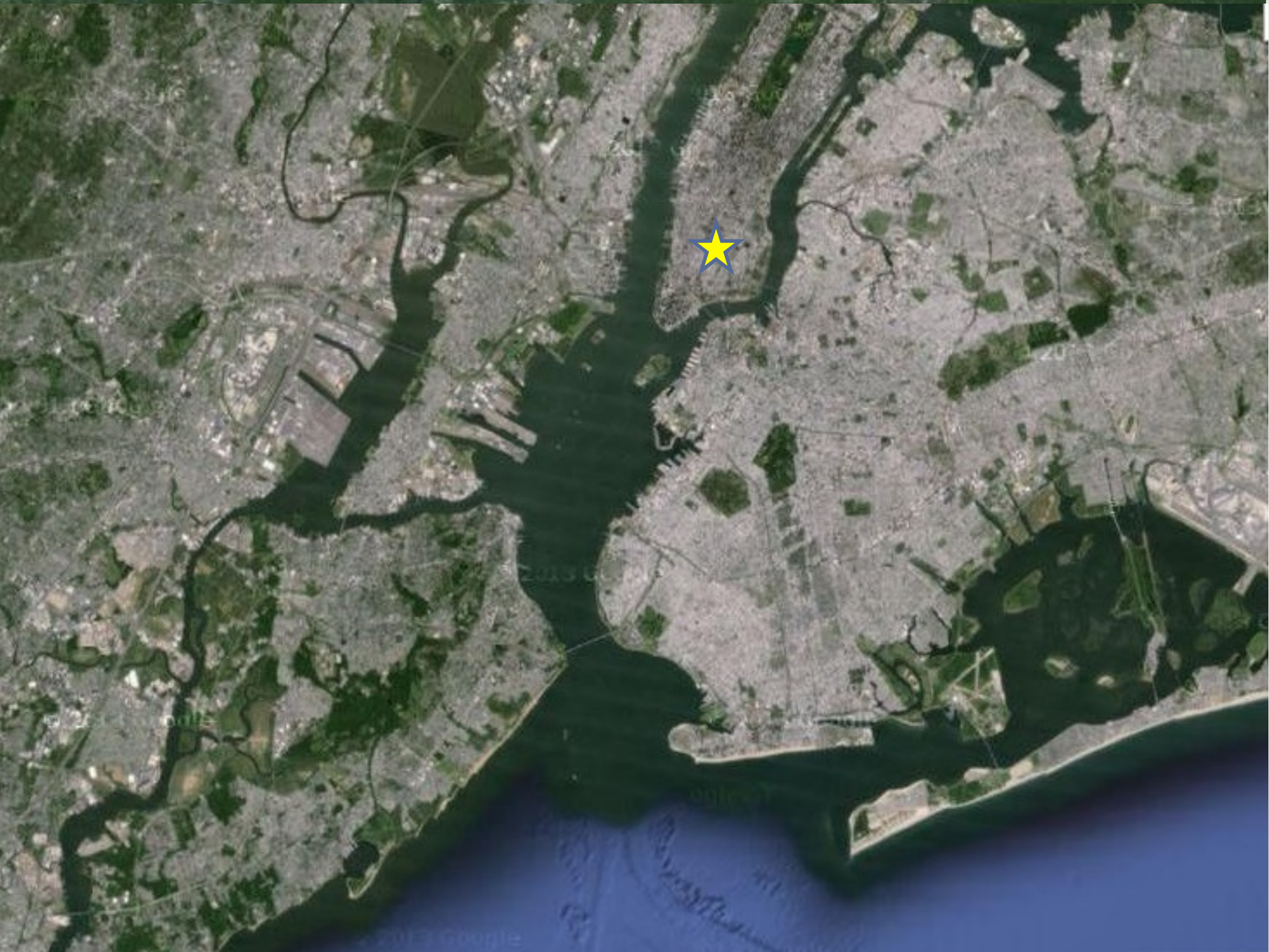


Why Coastal Flooding Happens

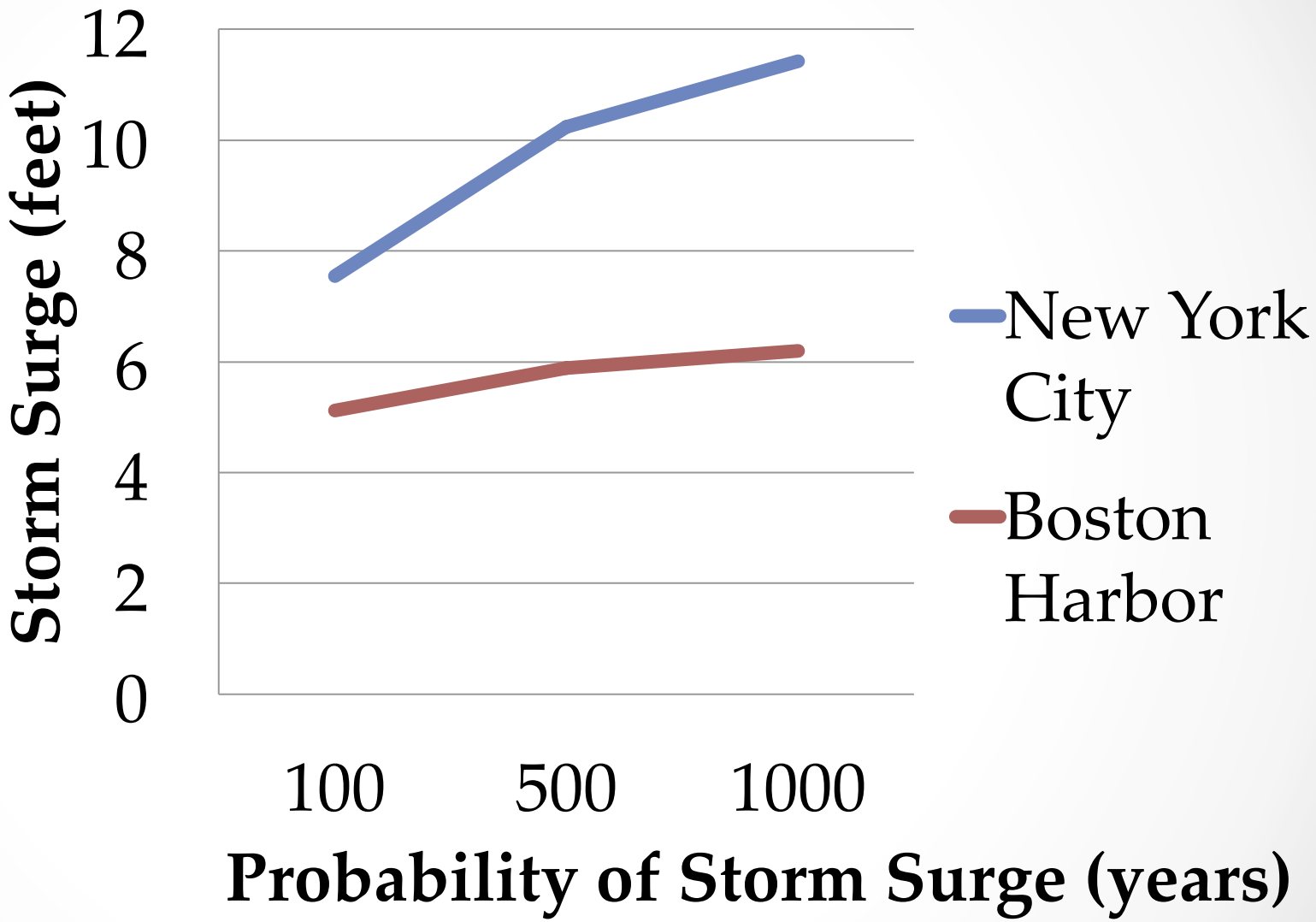
- Storm surges and/or
- "Wicked high tides" during full & new moons and/or
- Sea level rise

BOSTON HARBOR NOW

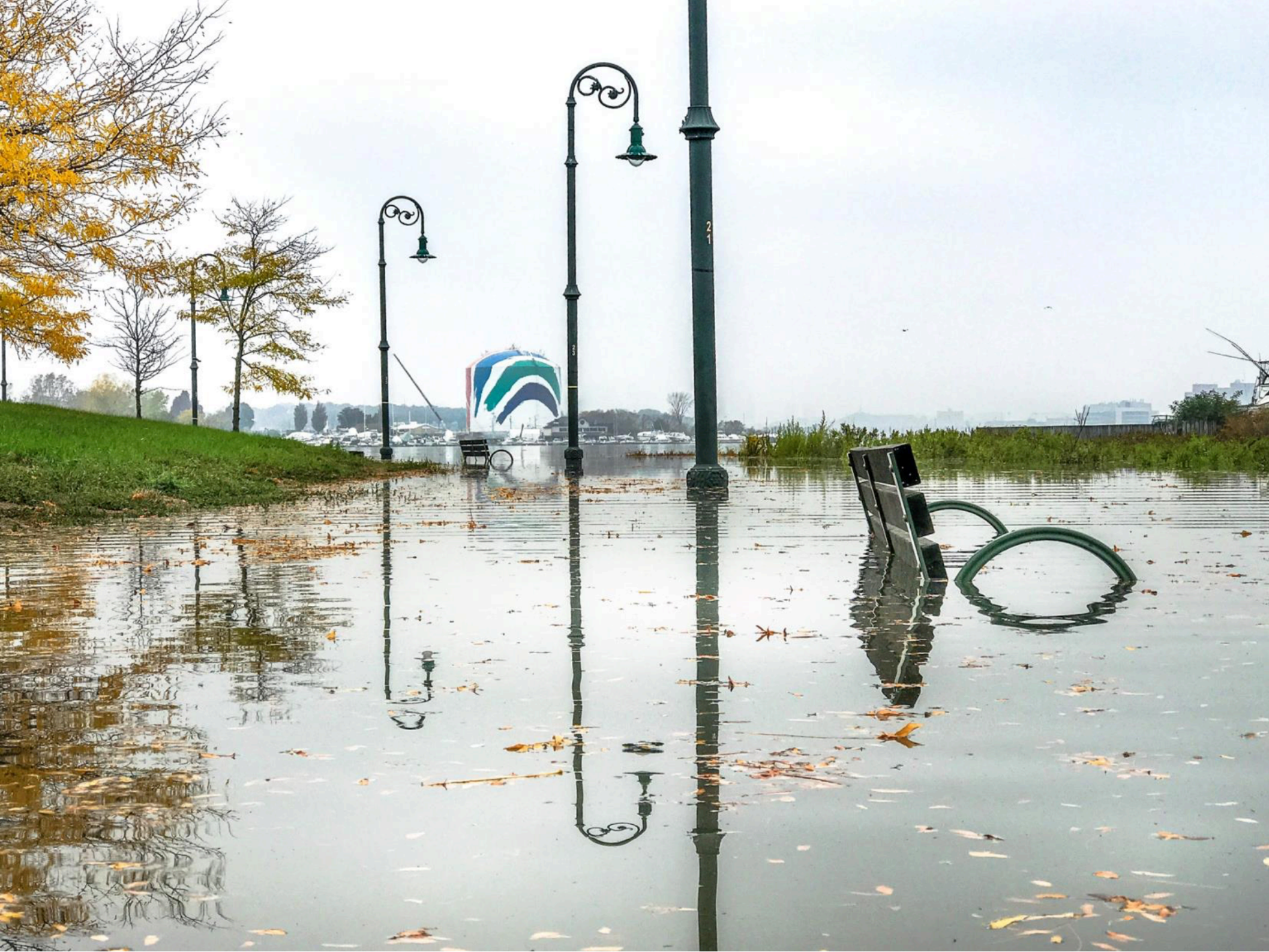

100-Year Wave Condition Applied at Wave Boundary
Incident wave characteristics:
Significant wave height: 9 m
wave period: 10 s
wave direction: 210 °
no wind
Wave Boundary
Wave direction
Significant Wave Height (m)
9.0
8.5
8.1
7.6
7.1
6.6
6.2
5.7
5.2
4.7
4.3
3.8
3.3
2.8
2.4
1.9
1.4
0.9
0.5
0.0



100-, 500- and 1,000-year Surges New York City + Boston Harbor



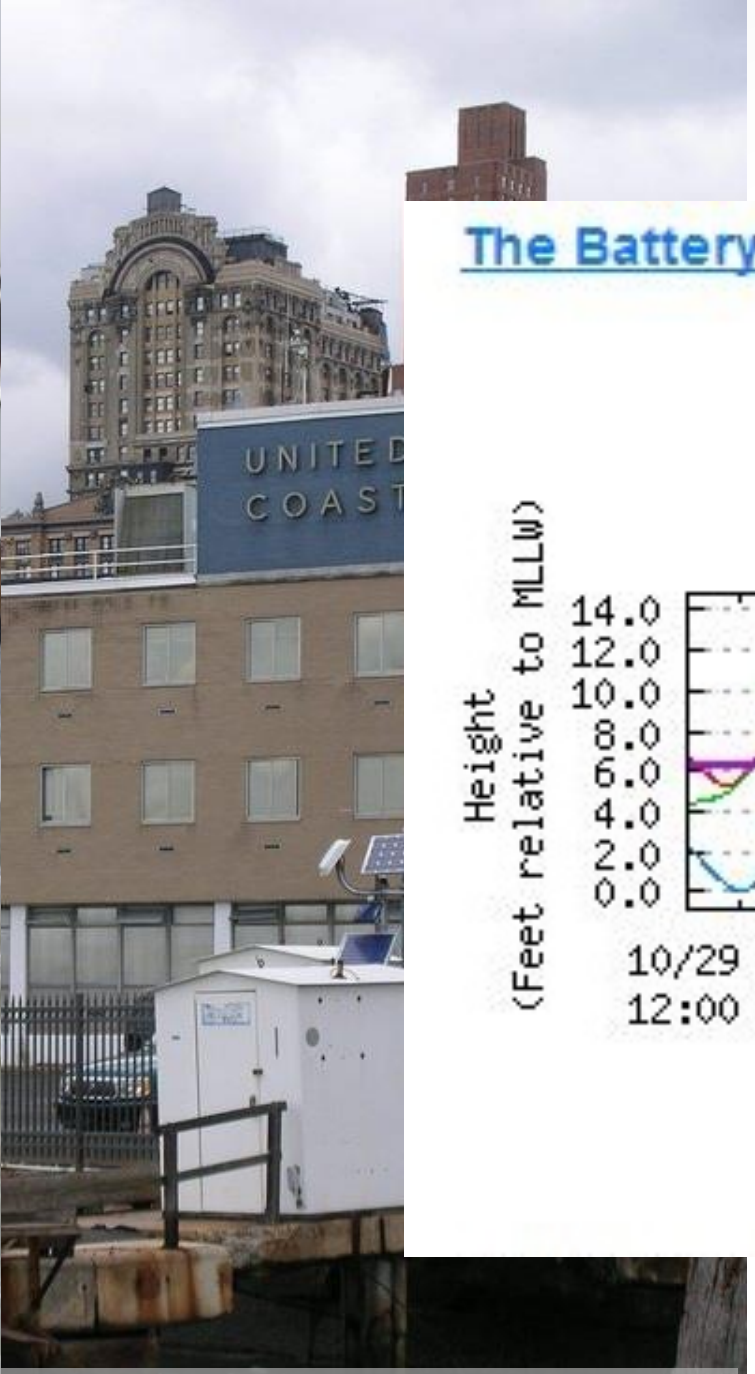
BOSTON HARBOR NOW




CUSTOM HOUSE BLOCK

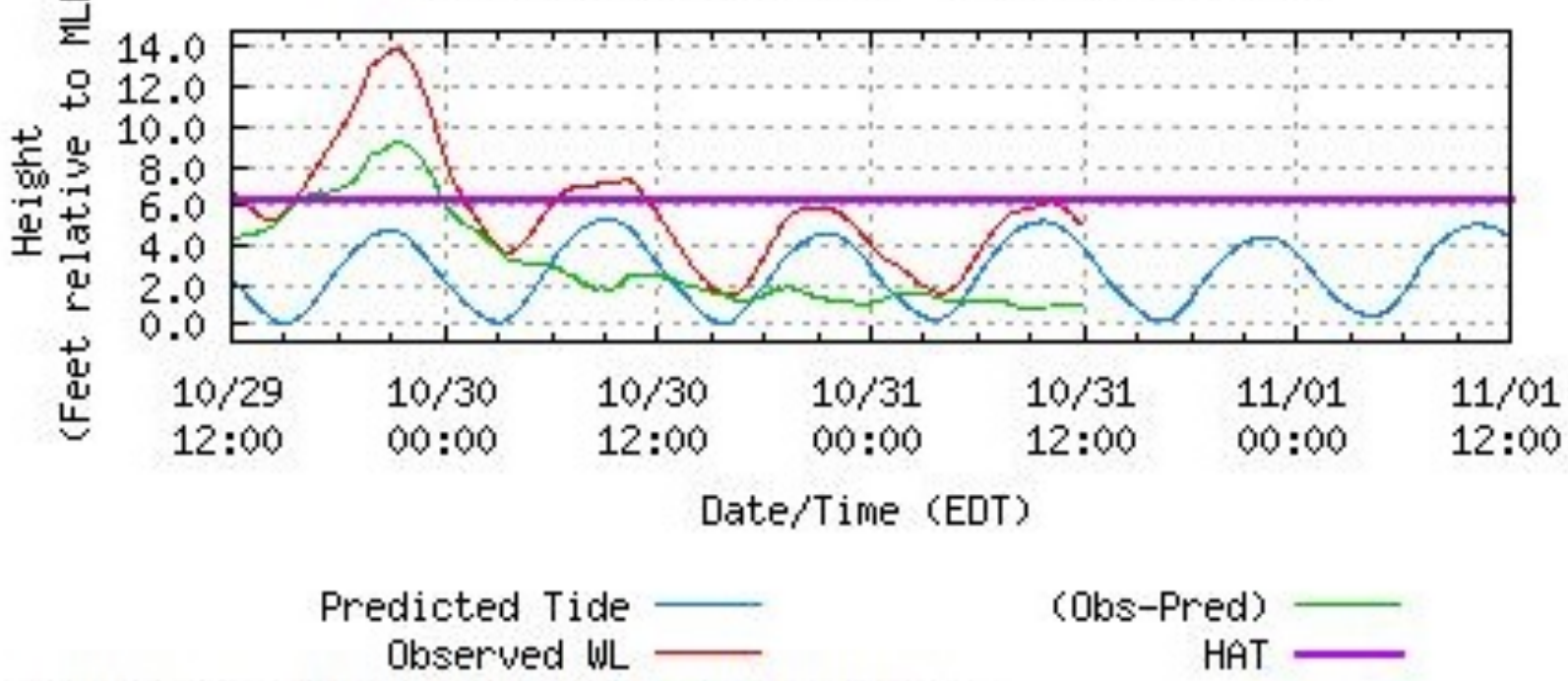

CH
CHART
HOUSE
FORCE
FROM
HOME


© RUSS BOLT



The Battery, NY - Return to List

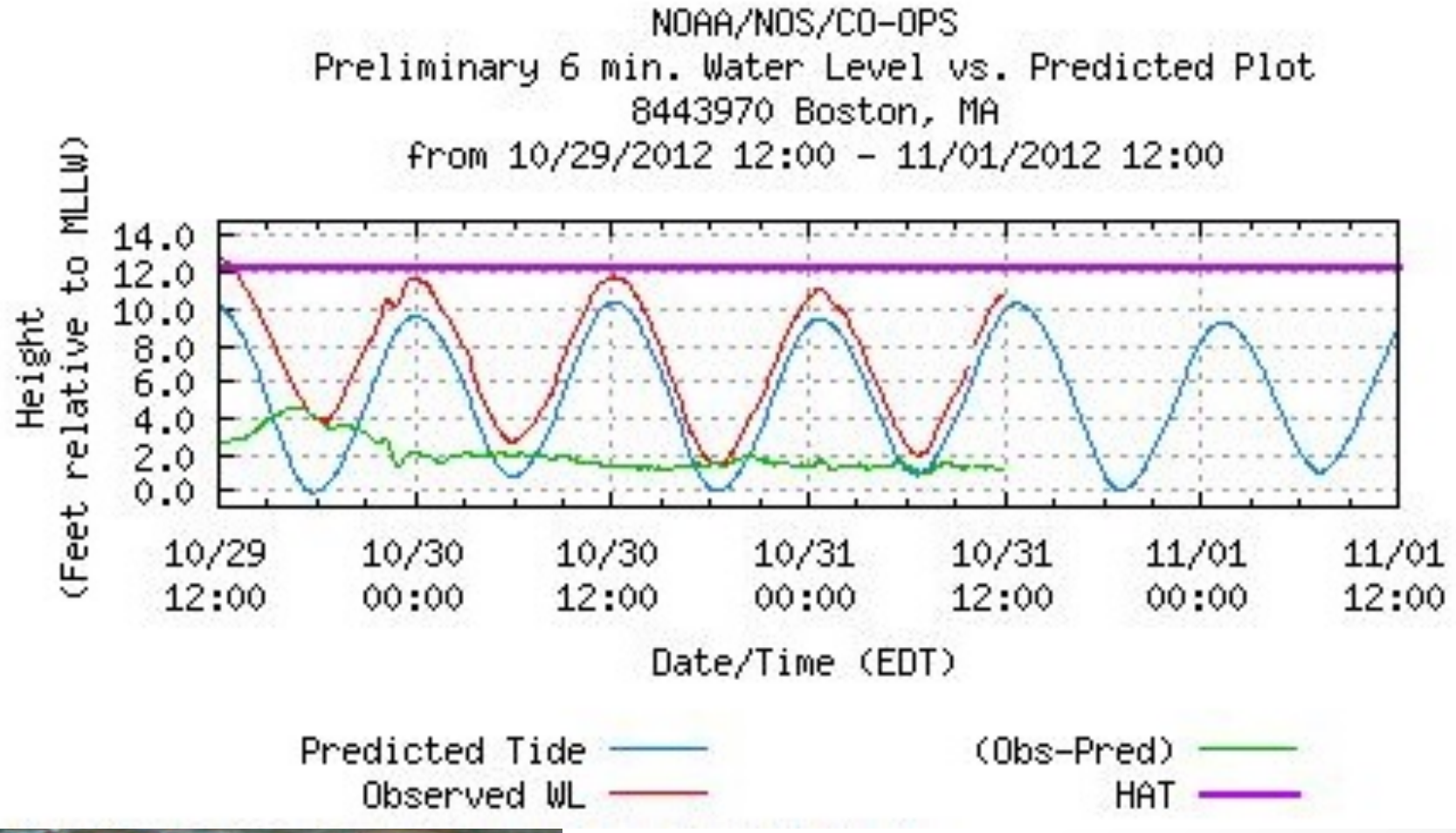
NOAA/NOS/CO-OPS
Preliminary 6 min. Water Level vs. Predicted Plot
8518750 The Battery, NY
from 10/29/2012 12:00 - 11/01/2012 12:00



Tides

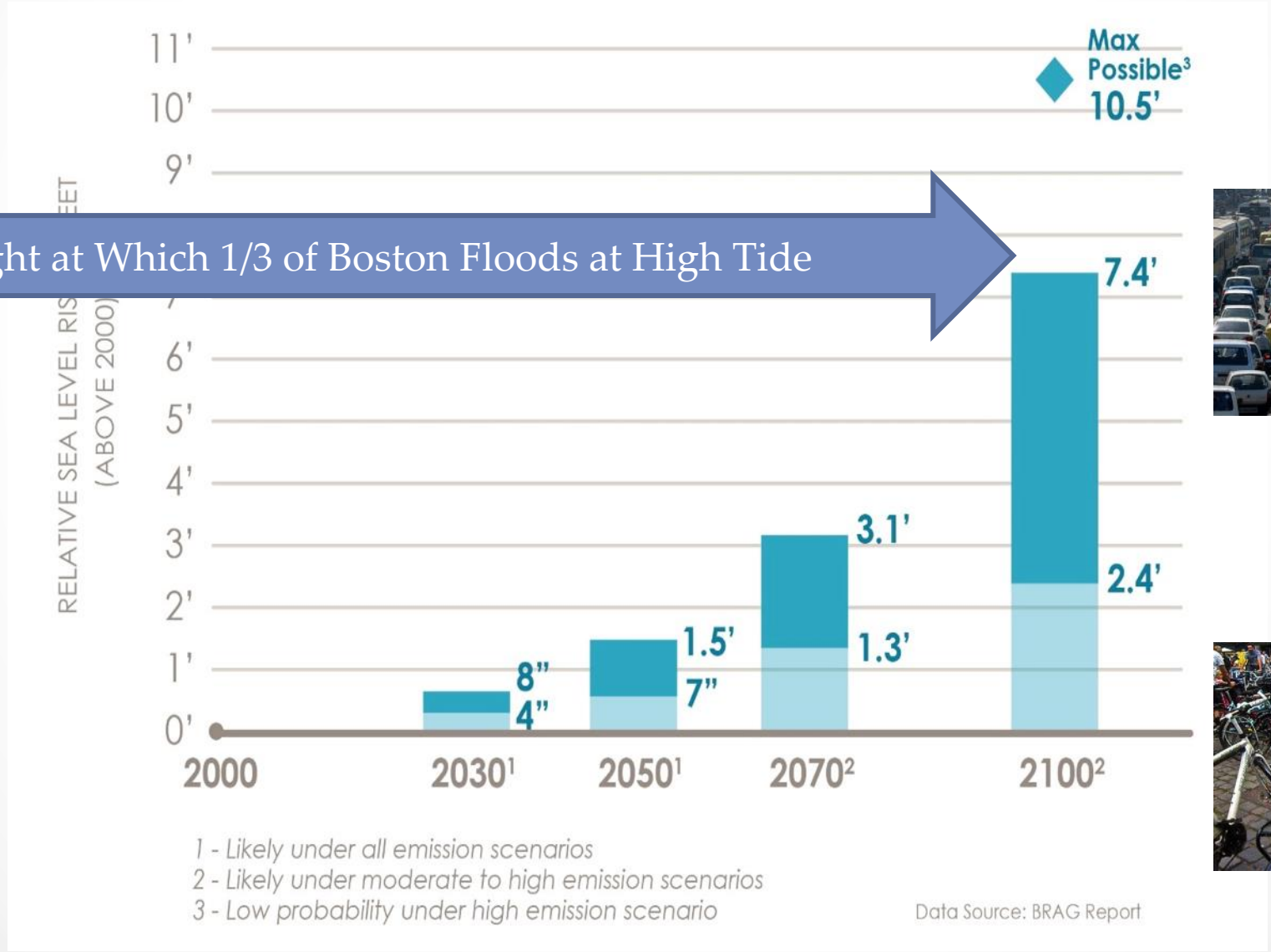
BOSTON HARBOR NOW

Boston, MA - Return to List



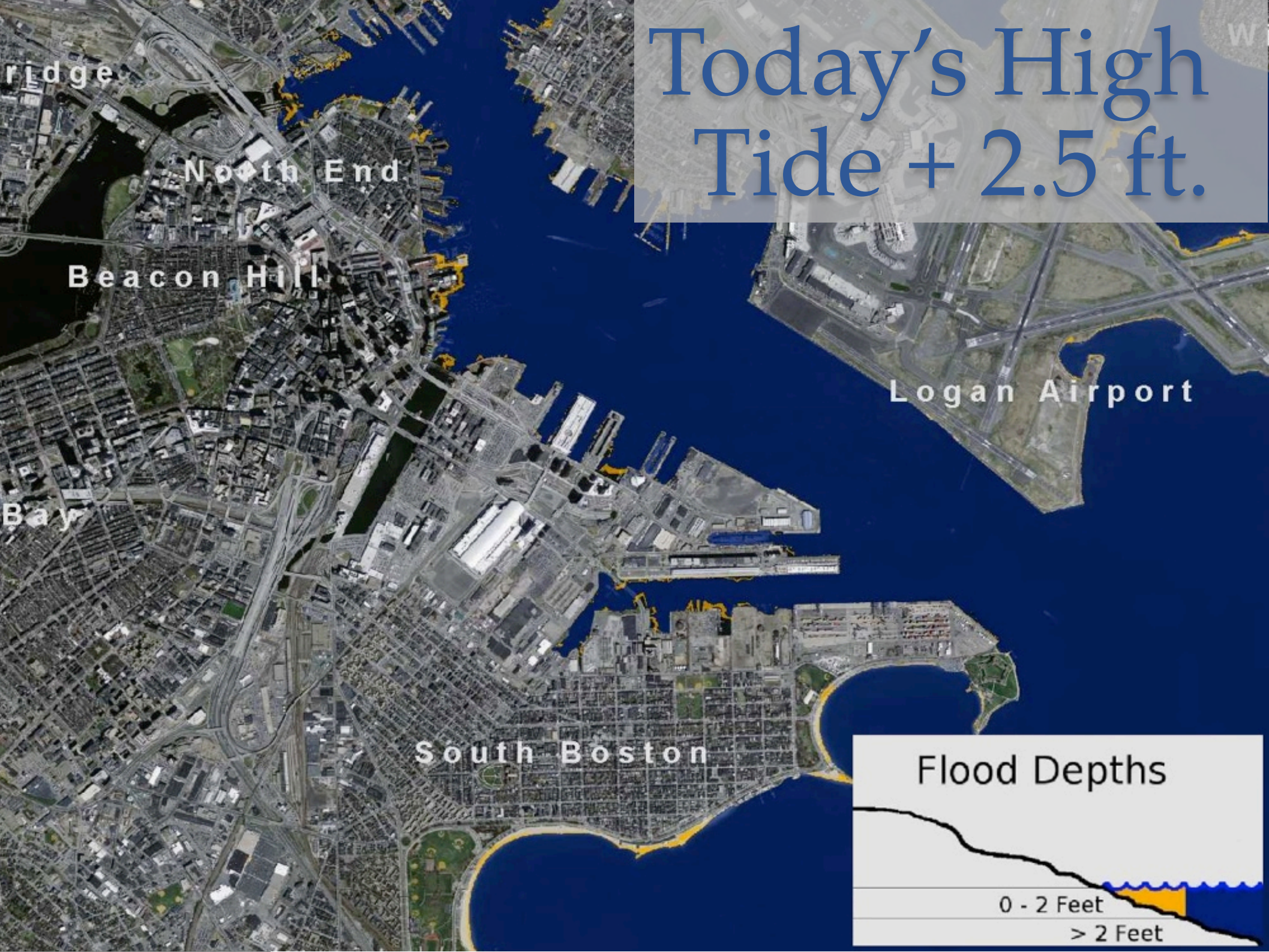
BOSTON HARBOR NOW

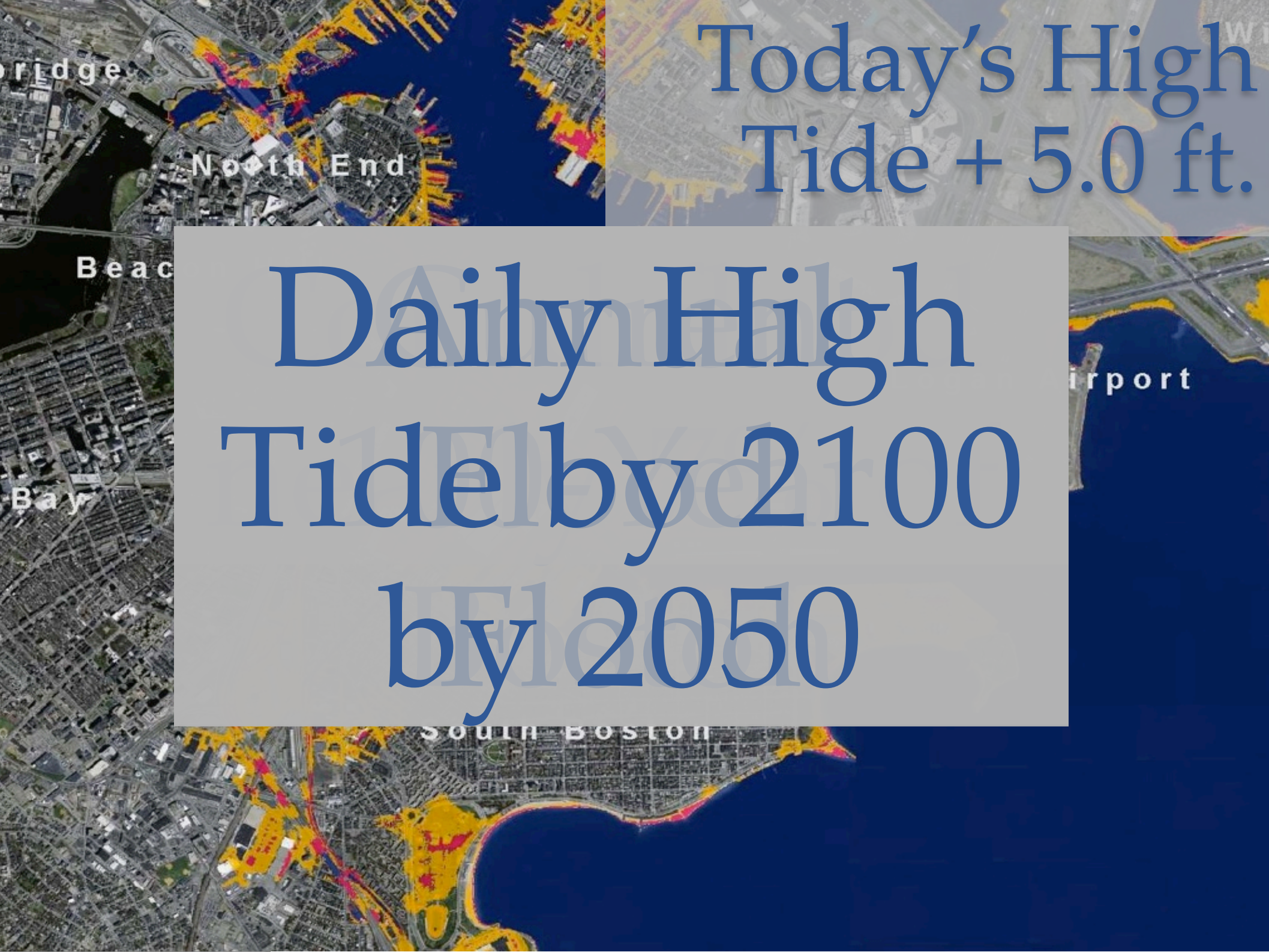
Sea Level Rise vs. Carbon Emissions



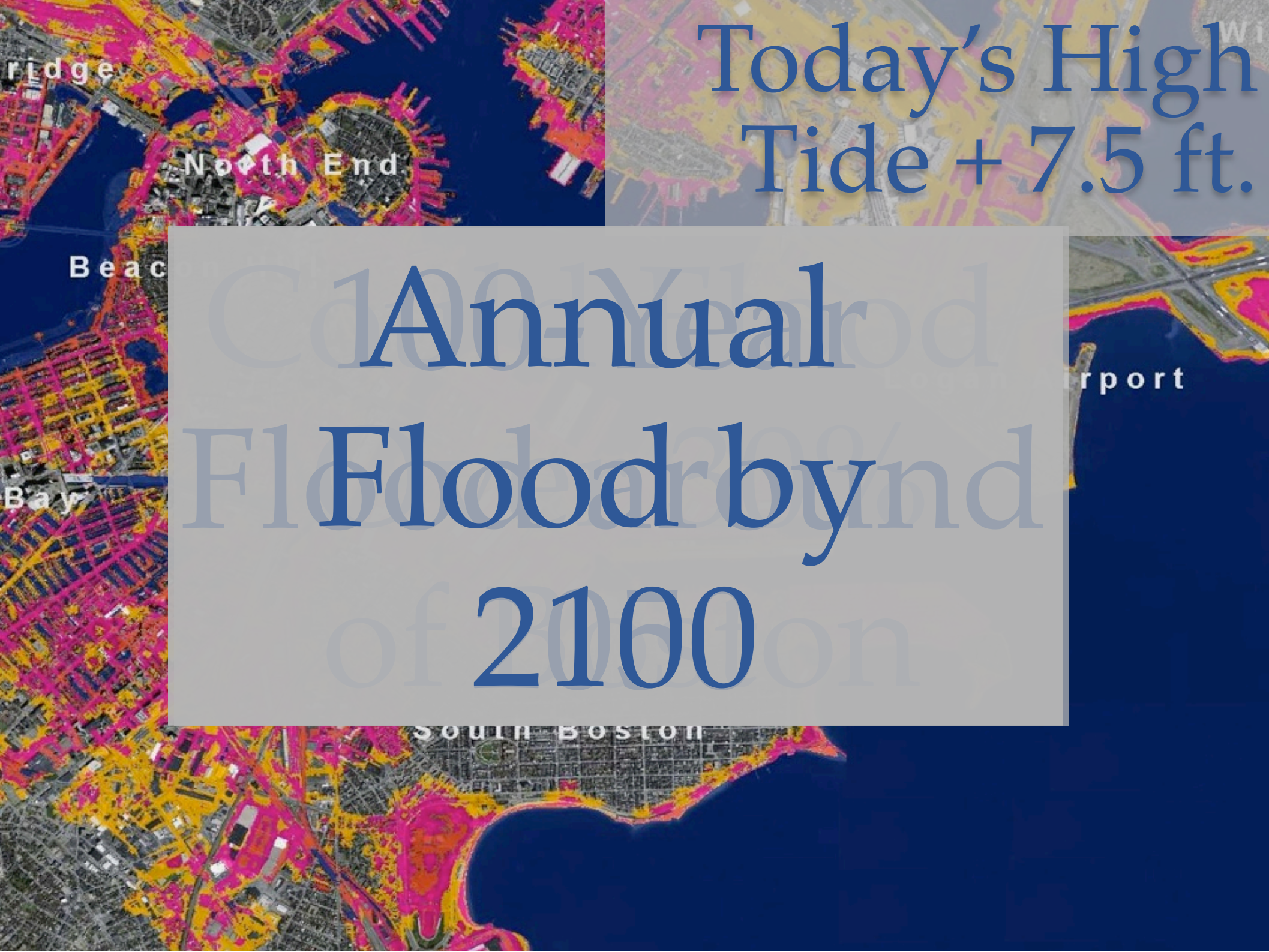
Height at Which 1/3 of Boston Floods at High Tide


Apple Island
Governors Island
Dorchester Flats
Dorchester Neck
Dorchester Point
Castle Island
Muscle Bank
Middle Ground
Seven Feet Channel
Lauchmere Point
North Battery
Mill Pond


Today's High
Tide + 2.5 ft.
ridge
North End
Beacon Hill
Logan Airport
Bay
South Boston
Flood Depths
0 - 2 Feet
> 2 Feet


Today's High
Tide + 5.0 ft.
Daily High
Tide by 2100
by 2050
North End
South Boston

What Floods at High Tide+5?


Today's High Tide + 7.5 ft.
Annual Flood by 2100
North End
South Boston

What Floods at High Tide + 7.5?

City of Boston Actions

- 2015: Climate Action Plan update
- 2016: Climate Ready Boston and Imagine Boston 2030 plan
- 2017: Hosting Global Summit
- Need to update regulations, capital budgets to anticipate changing climate

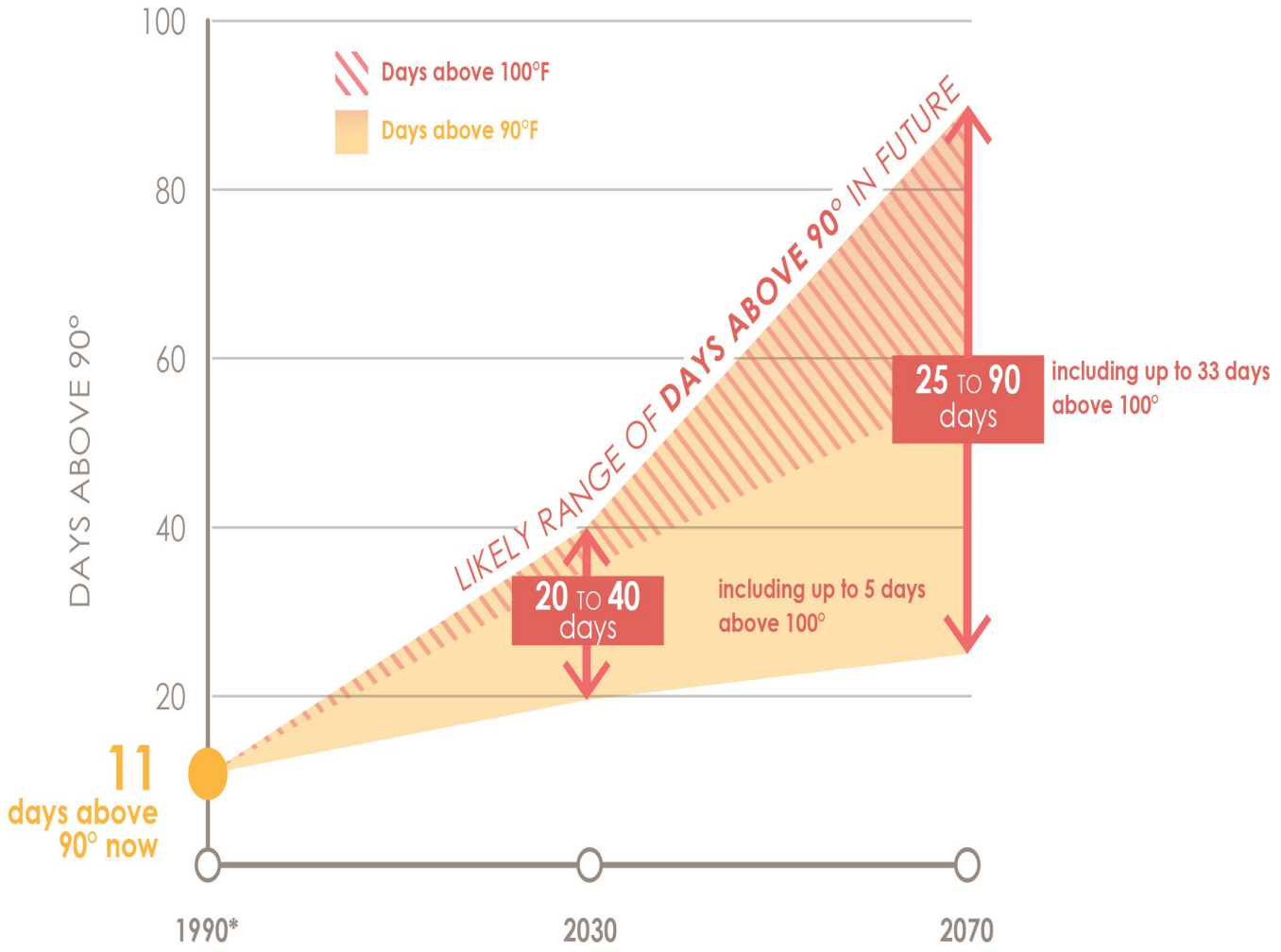
Rainfall trends

- Boston's annual rainfall and one-day rain totals have gone up by 10% since the 1960s.
- Both "flash floods" and "flash droughts" are increasing.
- Our stormwater infrastructure is not designed to handle future volumes of water.

Framingham, September 2015


Fall River, March 2010

Projected future heat



* Baseline represents historical average from 1971-2000
Upper values from high emissions scenario. Lower values from low emissions scenario.

Data source: Rossi et al. 2015

What the Dutch say:

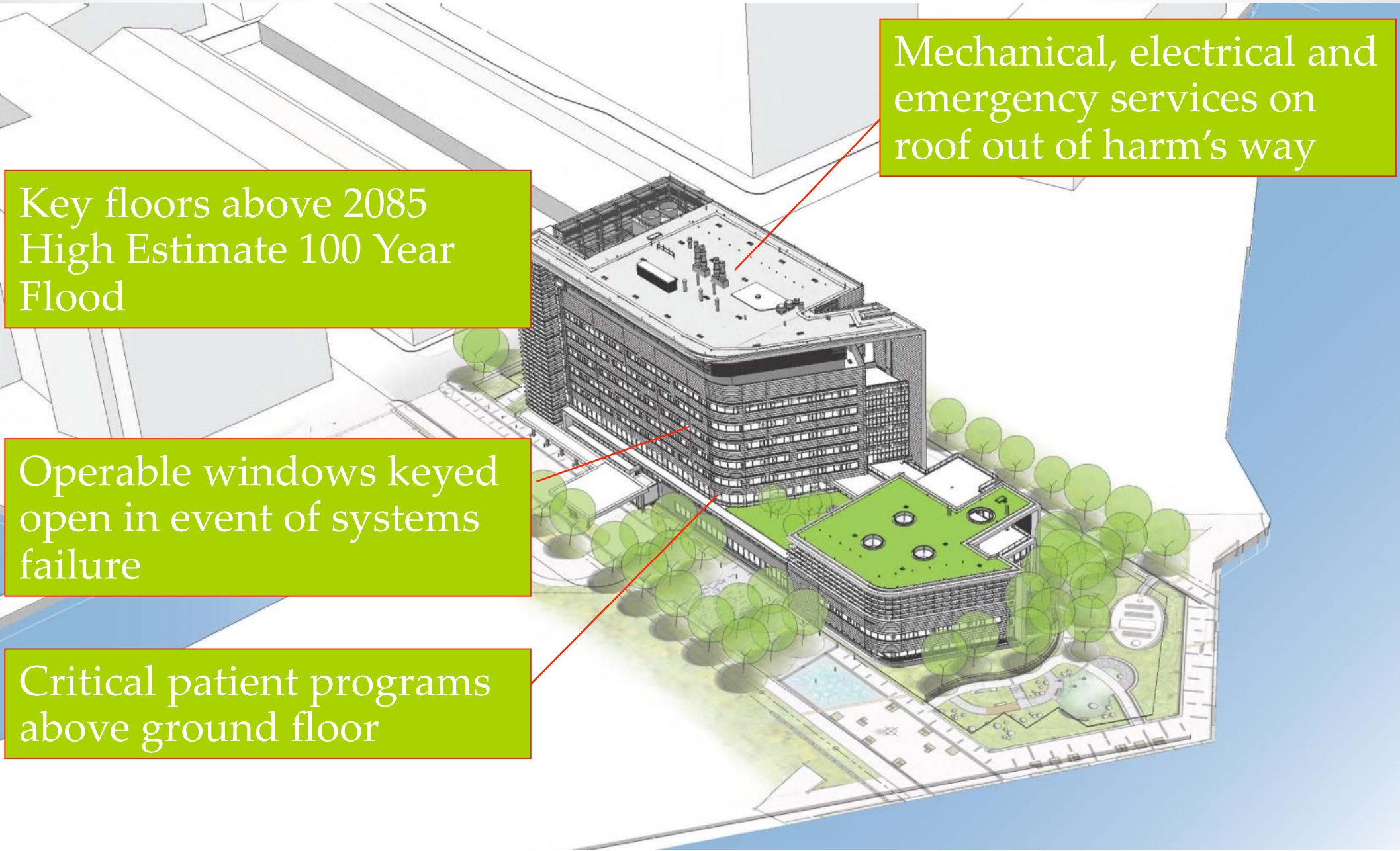
1. Regional barrier (e.g., dam, levee, sea wall)and/or
2. Floodable transition zone and/or
3. Building-specific designs

"Living With Water"

- Phrase coined in New Orleans
- Favor "resilience" over "resistance" where possible.
- Elevate vulnerable resources, pair with floodable areas.
- Favor flood control solutions that enhance livability.

BOSTON HARBOR NOW

Phase Plans Over Time



Create Double-duty Solutions

Seoul, South Korea

Cheong Gye Cheon Channel

Design for Resilience

Community Resilience

Gloucestershire Village Agents, UK

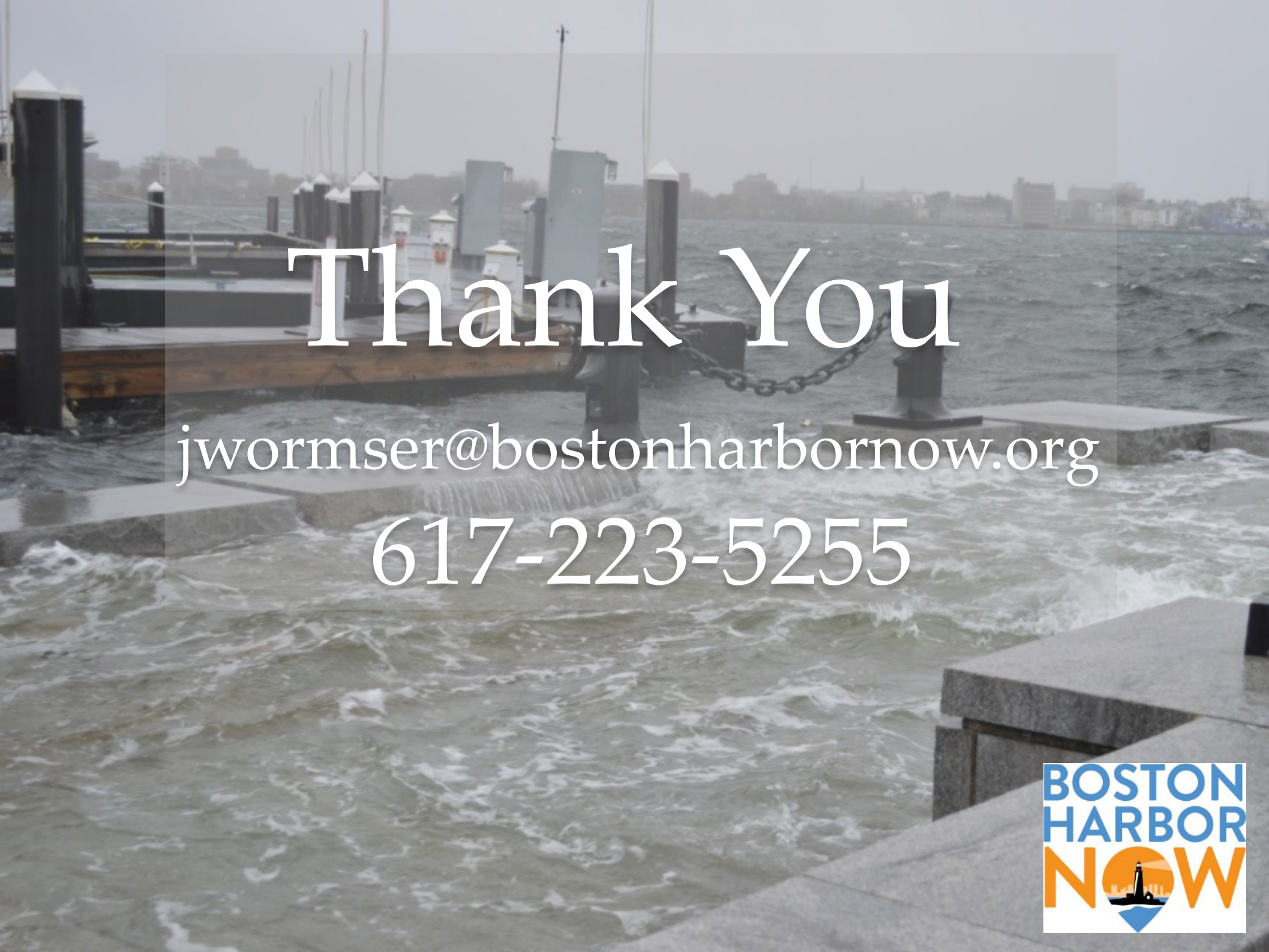
Institutionalize Resilience

Room for the Waal, The Netherlands

Summary of Findings

- Under business as usual carbon emissions, 1/3 of Boston could flood twice daily by 2100.
- Boston will be different. It doesn't have to be worse.
- Preventing flood damage will cost money. Make it count by solving other problems at the same time.

BOSTON HARBOR NOW



Thank You

jwormser@bostonharbornow.org

617-223-5255