

# Will **Climate** Risks Change the Map of NYC?



How can **people** who are not scientists or planners begin to understand what **climate change risks** could mean for their communities, and for others around the world?

We compiled this presentation of maps and photographs from some available data in an initial effort to **communicate** the complexity of this issue.

Our goal is to **engage** New Yorkers throughout the five boroughs in climate change discussions and planning processes, and to raise awareness about the ways in which we can all **work together** to limit global climate change risks.

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**Gail Karlsson**, Citizens Network for Sustainable Development

**Nancy Owens Studio LLC**

**Laurel Marx Design**



# New York City TODAY

The five boroughs of New York City have close to 600 miles of coastline. Much of the city's historic development has been tied to the harbor, bays, tidal straits, and Hudson River.





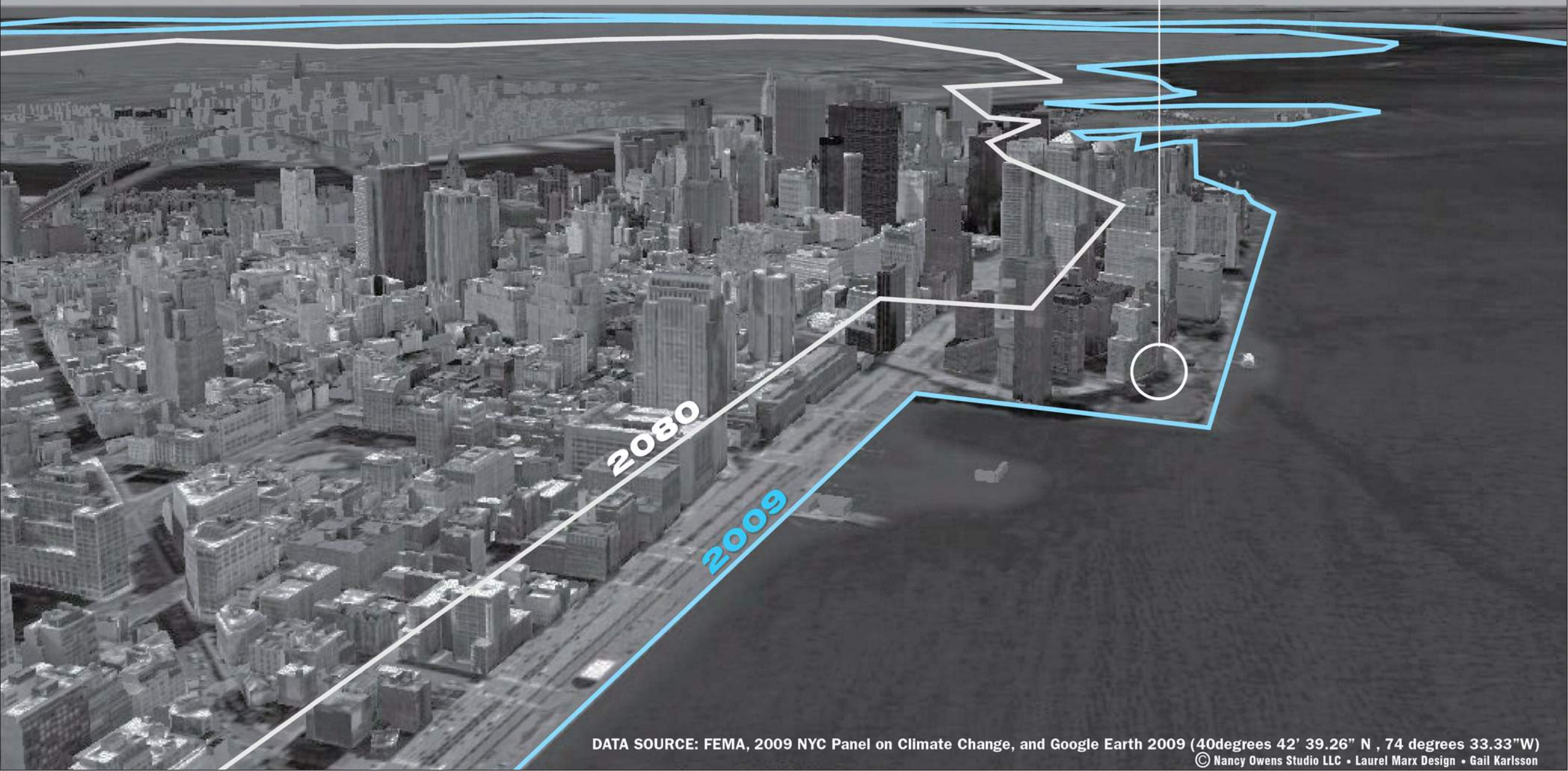
# Projected Sea Level Rise

2 to 5" by **2020**

7 to 12" by **2050**

12 to 23" by **2080** if rapid melting of ice sheets, 41-55"

**ACTION CENTER**





# New York City 100 Year Floodplain

The term **100-year flood** is misleading. It is not the flood that will occur once every 100 years. Rather, it is the flood elevation that has a 1% chance of being equaled or exceeded each year. Thus, the 100-year flood could occur more than once in a relatively short period of time.

 CURRENT FLOODPLAIN

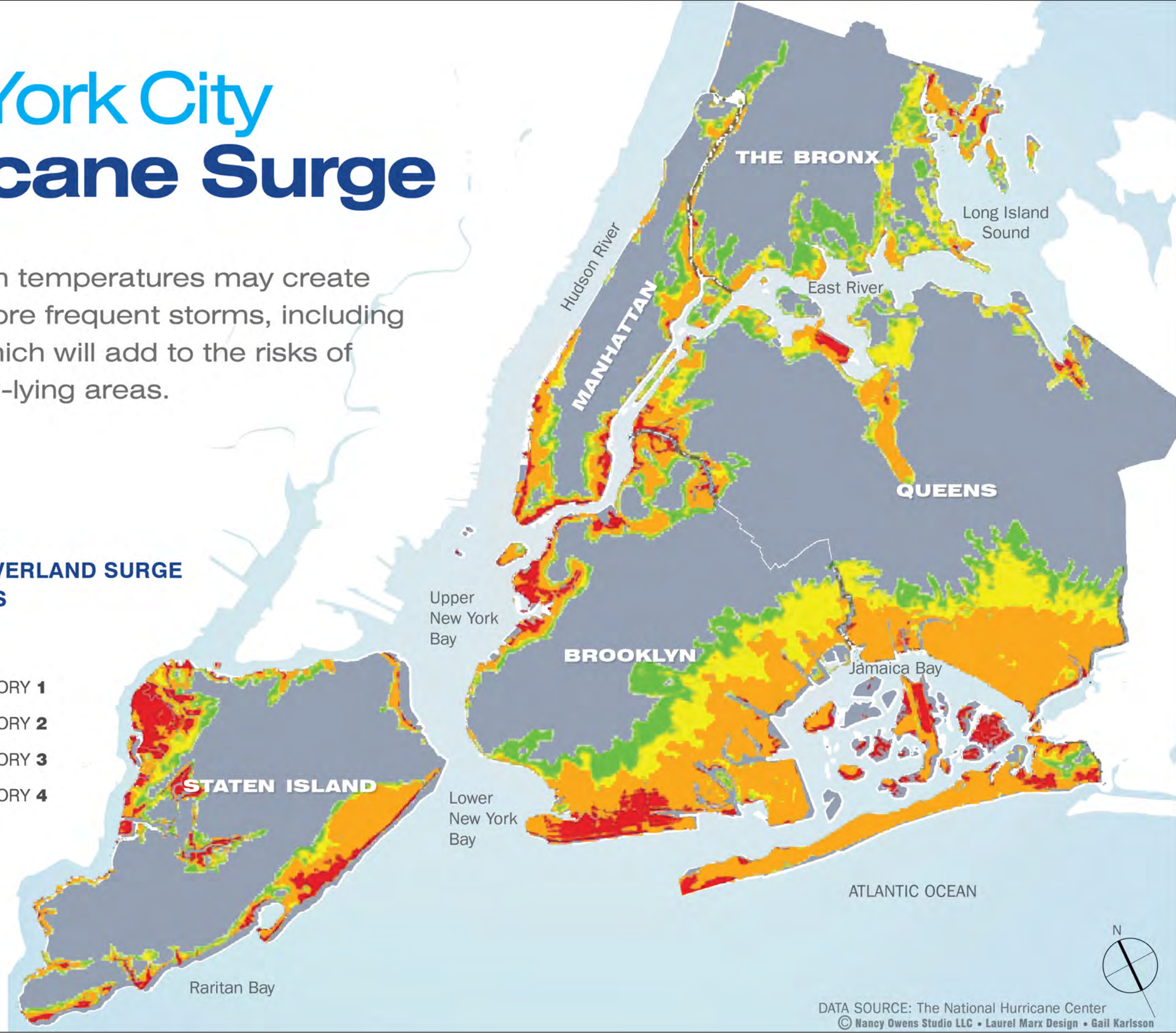




# New York City Hurricane Surge

Warmer ocean temperatures may create stronger or more frequent storms, including hurricanes, which will add to the risks of flooding in low-lying areas.

**SLOSH** stands for  
**SEA, LAKE and OVERLAND SURGE**  
from **HURRICANES**





# New York BIGHT

New York City is particularly vulnerable to storm surges because of a geographic characteristic called the NY Bight. The Bight is located at the point where New York and New Jersey meet, creating a right angle in the coastline.

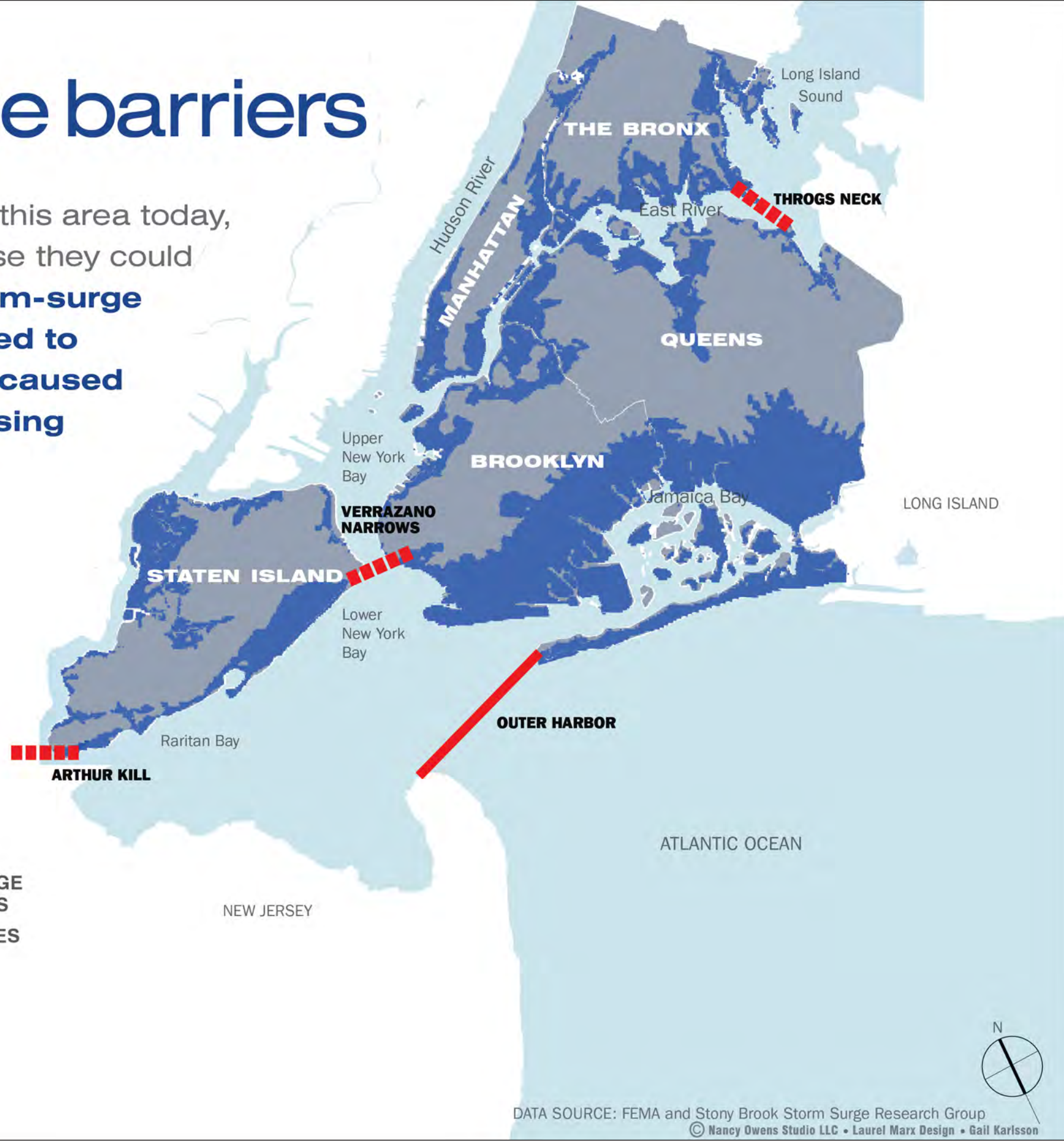
**A BIGHT is a curve or bend in the shoreline of an open coast that funnels and increases the speed and intensity of a storm surge.**





# Storm-surge barriers

Hurricanes are uncommon in this area today, but as ocean temperatures rise they could become more common. **Storm-surge barriers have been proposed to protect NYC from flooding caused by major hurricanes and rising sea levels.**



- AREAS SUSCEPTIBLE TO STORM-SURGE FLOODING FROM MAJOR HURRICANES
- STORM-SURGE BARRIER ALTERNATIVES
- OUTER HARBOR STORM-SURGE BARRIER ALTERNATIVE



# We are in a “green building” ...

in an area of low-elevation built on landfill, and in the event of a strong hurricane, it is at risk of flooding.

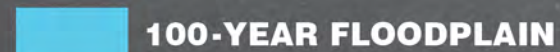
**ACTION CENTER**

-  SLOSH CATEGORY 1
-  SLOSH CATEGORY 2
-  SLOSH CATEGORY 3
-  SLOSH CATEGORY 4



# Should buildings in flood-prone areas be built differently?

**BROOKLYN**

 **100-YEAR FLOODPLAIN**

**CONEY ISLAND**

**DATA SOURCE: FEMA DFIRM Database and image from flickr.com**

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# Should existing buildings be changed to respond to increased risks?



ROCKAWAYS

QUEENS

100 YEAR FLOODPLAIN



# During a flood...where do we go?

**STATEN ISLAND**

 **100 YEAR FLOODPLAIN**

**DATA SOURCE: FEMA DFIRM Database and image from flickr.com**

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# After a flood...where do we live?

THE BRONX

100 YEAR FLOODPLAIN





# Before a flood...how should we plan?

MANHATTAN

100 YEAR FLOODPLAIN

DATA SOURCE: FEMA DFIRM Database and Google Earth 2009 ( 40 degrees 42'37.98"N, 74 degrees 22.60"W)

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Through Mayor Bloomberg's **PlaNYC**, New York City has already begun the complicated work of responding to climate change through:

## **mitigation**

reducing greenhouse gas emissions from buildings and vehicles,

AND

## **adaptation**

making plans to protect people and infrastructure from projected climate risks.





PlaNYC includes initiatives to **mitigate climate change** by reducing greenhouse gas emissions such as :

- **Decrease municipal government's carbon footprint**
- **Provide cleaner energy**
- **Plant trees**
- **Reduce vehicular congestion**
- **Promote cycling by installing bike lanes**
- **Convert to hybrid taxi cabs**



**There is much that needs to be done locally, nationally and internationally to prevent worst-case climate risk scenarios.**

**It is our hope that as people come to understand more clearly the **shared risks** we face, we will be able to move together towards **shared solutions** for effective preventive and protective action.**

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