

Name: _____ Date: _____

Day 3: NOAA Sea Level Projections

Do Now: Has your house, or the house of someone you know, ever flooded? If so, how long did it take to recover?

What are all the climate change factors that can impact sea level?

1. Higher temperatures and thermal expansion (from yesterday)
2. Glacial melting
3. Higher rainfall due to higher evaporation (disruption of the water cycle)

Graph 1

At what point did sea levels really start to rise? What was happening around that time?

~1900, the beginning of the Industrial Revolution. More exhaust from factories, no federal environmental regulations, CO2 levels were starting to rise, temperatures were starting to rise.

Graph 2

Where is sea level rising?

Almost everywhere!

What areas are going to experience the greatest rise?

Away from the coasts and landmasses; more rise in the middle of big bodies of water. Exceptions: Considerable rise in North America/New England.

What areas are going to experience the lowest rise?

The poles and the Northern and Southern coastlines (Canada, Alaska, South Africa, etc).

Where is sea level not rising?

Near Canada at the Hudson Bay.

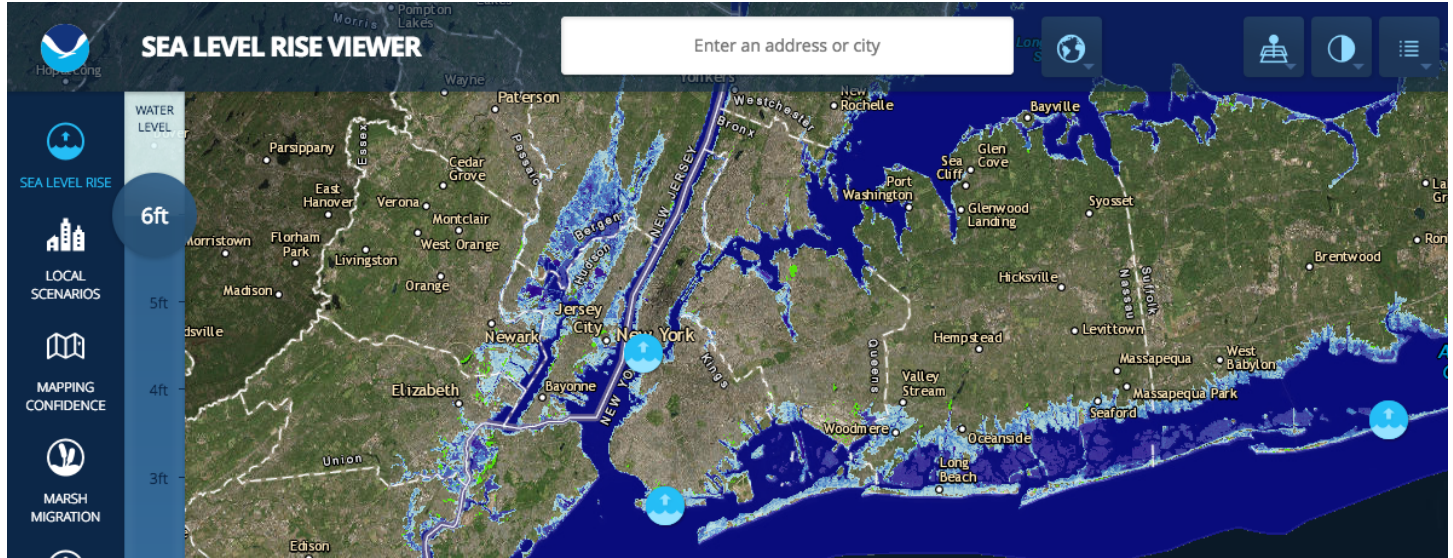
Turn and Talk: As sea levels rise, what are some impacts humans will encounter?

Coastal erosion, loss of property, mass human migration, various humanitarian crisis', islands will be underwater, etc.

The IPCC projects sea levels will rise over 98cm/38.5 inches by 2100.

Independent Practice
NOAA Sea Level Projections

For Fulton Street, you should model the process on the board and talk about what students are seeing. The three locations we are using are listed below. Highest location is Fulton Street, Coney Island is in the middle, and West Babylon is on the far right.



1. Look at Fulton Street.
 - a. Open “Sea Level Rise”.
 - b. Start at MHHW. Look up what MHHW is in Google:

The average of the higher high water height of each tidal day observed over the National Tidal Datum Epoch.
OR, the average of the highest high tide per day over time as according to the NOAA.

- c. Now, rise the slider slowly up from 1ft to 6ft.
- d. Describe what you notice below.

Sea level rises, streets are flooding.

2. Look at Coney Island.
 - a. Open “Sea Level Rise”.
 - b. Now, rise the slider slowly up from 1ft to 6ft.
 - c. Describe what you notice below.

3. Look at West Babylon.
 - a. Open “Sea Level Rise”.
 - b. Now, rise the slider slowly up from 1ft to 6ft.
 - c. Describe what you notice below.

4. Now, zoom out and look at all of NYC. What areas are most likely to be underwater?

Red Hook, Coney Island, Flushing, Secacus, Jersey City, Linden, Howard Beach, Jamaica, Long Beach.

Independent Practice Part 2
[NPCC Climate Projections 2015](#)

1. Look at “Climate Observations & Trends”. Describe what you read below.

Temperatures are rising, sea level is rising, rainfall is rising and getting heavier. This is due to increased GHGs in the atmosphere which results from the burning of fossil fuels.

Average annual temperatures are rising at a rate of 0.3F per decade, for a total of 3.4F. Precipitations has increased .8 inches per decade to 8 inches from 1900 to 2013.

In NYC, sea level rise has averaged 1.2 inches per decade for a total of 1.1 feet, which is twice the global rate.

2. Look at “Climate Projections”. Describe what you read below.

By 2050, temperature will increase by 4.1 to 5.7F. By 5080, it may rise by 5.3F to 8.8F. Annual precipitation is projected to increase from 4-11% by 2050 and 5-13% by 2080. Heat waves are projected to increase from 2 per year to six per year by 2080. Sea level in NYC will increase between 11-21 inches by 2050, and 18-39 inches by 2080, and 22-50 by 2100. Worst case scenario is six feet. Coastal flooding will also increase.

3. Look at “Coastal Flooding”. Describe what you read below.

By 2100, sea level rise will double in affected areas.

4. Look at “Key Recommendations and City Actions”. Describe what you read below.

- A) Creating a flood protection system in the Lower East Side to protect the waterfront. This will ultimately spread to all of lower Manhattan.
- B) Analyzing NYC’s food supply chain, to ensure that the city has access to food during a disaster.
- C) NYC Cool Roofs with reflective paint in order to combat the urban heat island effect.
- D) \$100 million shoreline investment program in order to protect the most vulnerable waterfront communities (Coney Island, Staten Island’s South Shore). This will impact around 43 miles of shoreline.

