



Visualizing the Impacts of NWS Coastal Flood Forecasts using NWS Impacts Catalogs and NOAA Coastal Inundation Viewer



WFO New York NY Coastal Flooding Webpage



NWS New York, NY Coastal Flooding Page

New York, NY
Weather Forecast Office

[Weather.gov](#) > [New York, NY](#) > NWS New York, NY Coastal Flooding Page

[Current Hazards](#) [Current Conditions](#) [Radar](#) [Forecasts](#) [Rivers and Lakes](#) [Climate and Past Weather](#) [Local Programs](#)

Tidal Observations	Coastal Flood Benchmarks, Impacts/Analysis, Guidance	Surge Models
Astronomical Tidal Prediction	Inundation/Impact Resources	Latest Coastal Flood Forecasts

Use our water level forecasts with our Impact Catalogs and NOAA Inundation Mapper to ascertain potential coastal impacts for your area

LATEST COASTAL FLOOD FORECASTS

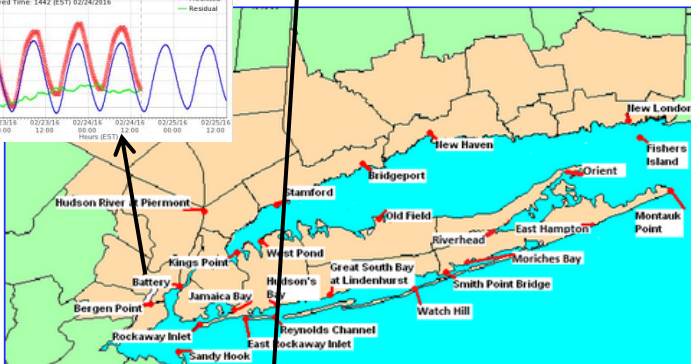
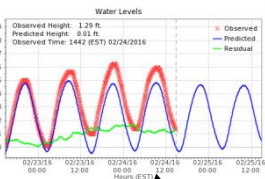
NYCCFWOKX	Coastal Flood WATCH / WARNING / Advisory	Latest
NYCHWOKX	Hazardous Weather OUTLOOK	Latest

[Understanding the Minor, Moderate, Major Coastal Flood Thresholds](#)

[Understanding Coastal Flood Terminology](#)

INUNDATION AND IMPACT RESOURCES

TIDAL OBSERVATIONS



COASTAL FLOODING THRESHOLDS, IMPACT CATALOGS and ANALYSIS

[Understanding Coastal Flood Terminology](#)

Long Island Sound		
Station	Coastal Flood Benchmarks (MLLW / MHHW / NGVD)	Tidal Impacts/Analysis
Connecticut		
Bridgeport (NO 3)	Minor - 8.8' / 1.8' / Moderate - 10.4' / 3.1' / Major - 11.4' / 4.1' /	Impacts Top 20 list Exceedance Probabilities
New Haven (NO 3)	Minor - 8.8' / 1.8' / Moderate - 9.2' / 2.6' / Major - 10.6' / 3.3' /	Impacts

Coastal Inundation and Impact Mapping

- NOAA Coastal Services Center Inundation Mapper
- UCONN Inundation Mapper - (CT)
- Coastal Change Hazard (USGS)
- Storm Surge Inundation (SLOSH MOM)

Coastal Flooding Vulnerability

- Coastal Flood Exposure Mapper (NOAA CSC)
- Sea Level Rise and Coastal Flood Vulnerability Mapper (Climate Central)
- Coastal Resilience (LI Shore)
- Regional Effects of Storm Surge and Sea Level Rise to NYC Metro (Columbia University)
- NYC Metro Critical Facilities Surge Elevations

Storm Surge Zones

- NYC Storm Surge Zones
- NYC & LI Storm Surge Zones
- NYC, NJ, LI Storm Surge Zones
- Port Authority of NY/NJ Surge Maps
- Suffolk County Storm Surge Zones
- Staten Island Storm Surge Resource
- Interactive NY Metro Hurricane Storm Surge Vulnerability Mapper
- CT Storm Surge Zones



Coastal Flood Watch/Warning/Advisory



SOUTHERN QUEENS-SOUTHERN NASSAU-
507 PM EDT TUE SEP 19 2017

...HIGH SURF ADVISORY NOW IN EFFECT UNTIL 2 AM EDT THURSDAY...
...HIGH RIP CURRENT RISK NOW IN EFFECT THROUGH WEDNESDAY EVENING...
...COASTAL FLOOD WARNING REMAINS IN EFFECT UNTIL NOON EDT WEDNESDAY...
...COASTAL FLOOD ADVISORY IN EFFECT FROM 7 PM WEDNESDAY TO 1 AM EDT THURSDAY...

THE NATIONAL WEATHER SERVICE IN NEW YORK NY HAS ISSUED A COASTAL FLOOD ADVISORY...WHICH IS IN EFFECT FROM 7 PM WEDNESDAY TO 1 AM EDT THURSDAY.

1) Find the water level forecasts for the tidal gauges nearest to you.

JAMAICA BAY NY
MLLW CATEGORIES - MINOR 7.5 FT, MODERATE 8.2 FT, MAJOR 9.0 FT
MHHW CATEGORIES - MINOR 1.6 FT, MODERATE 2.3 FT, MAJOR 3.1 FT

DAY/TIME	TOTAL TIDE FT MLLW		TOTAL TIDE FT MHHW		DEPARTURE FROM NORM FT	WAVES FT	FLOOD IMPACT
19/09 PM	8.1/ 8.6	2.2/ 2.7	1.3/ 1.8	0	MODERATE		
20/09 AM	8.0/ 8.5	2.1/ 2.6	1.2/ 1.7	0	MODERATE		
20/09 PM	7.7/ 8.2	1.8/ 2.2	1.0/ 1.5	0	MINOR		

POINT LOOKOUT NY
MLLW CATEGORIES - MINOR 5.8 FT, MODERATE 6.8 FT, MAJOR 7.8 FT
MHHW CATEGORIES - MINOR 1.1 FT, MODERATE 2.1 FT, MAJOR 3.1 FT

DAY/TIME	TOTAL TIDE FT MLLW		TOTAL TIDE FT MHHW		DEPARTURE FROM NORM FT	WAVES FT	FLOOD IMPACT
19/08 PM	6.4/ 6.9	1.8/ 2.2	1.4/ 1.9	6-8	MODERATE		
20/08 AM	6.0/ 6.5	1.4/ 1.9	1.1/ 1.6	5-7	MODERATE		
20/09 PM	5.9/ 6.4	1.3/ 1.8	1.0/ 1.5	3	MINOR		

ROCKAWAY INLET NY
MLLW CATEGORIES - MINOR 7.3 FT, MODERATE 8.3 FT, MAJOR 9.3 FT
MHHW CATEGORIES - MINOR 1.8 FT, MODERATE 2.8 FT, MAJOR 3.8 FT

DAY/TIME	TOTAL TIDE FT MLLW		TOTAL TIDE FT MHHW		DEPARTURE FROM NORM FT	WAVES FT	FLOOD IMPACT
19/08 PM	7.7/ 8.2	2.1/ 2.6	1.4/ 1.9	3-4	MINOR		
20/09 AM	7.4/ 7.9	1.8/ 2.2	1.2/ 1.7	3-4	MINOR		
20/09 PM	7.3/ 7.8	1.7/ 2.2	1.1/ 1.6	2-3	MINOR		

Where →

* LOCATIONS...ATLANTIC OCEAN BEACHES AND ALONG THE SOUTH SHORE BAYS.

What
When →

* SURF HEIGHT...BUILDING TO 6 TO 10 FT TONIGHT AND CONTINUING INTO WEDNESDAY MORNING.
* TIDAL DEPARTURE...1 1/2 TO 2 1/2 FT ABOVE ASTRONOMICAL TIDES THIS EVENING THROUGH WEDNESDAY AFTERNOON CAUSING WIDESPREAD MINOR TO MODERATE COASTAL FLOODING. 1 TO 2 FT ABOVE ASTRONOMICAL TIDES WEDNESDAY NIGHT CAUSING MINOR COASTAL FLOODING.

Impacts →

* COASTAL FLOOD IMPACTS...2 TO LOCALLY 3 FEET OF INUNDATION ABOVE GROUND LEVEL IN LOW LYING, VULNERABLE AREAS NEAR THE WATERFRONT AND SHORELINE DURING TIMES OF HIGH TIDE THIS EVENING AND WEDNESDAY MORNING. THIS WILL RESULT IN NUMEROUS ROAD CLOSURES AND CAUSE WIDESPREAD FLOODING OF LOW LYING PROPERTY INCLUDING PARKING LOTS, PARKS, LAWNS AND HOMES/BUSINESSES WITH BASEMENTS NEAR THE WATERFRONT. VEHICLES PARKED IN VULNERABLE AREAS NEAR THE WATERFRONT WILL LIKELY BECOME FLOODED.
* SHORELINE IMPACTS...LARGE BREAKING WAVES WILL RESULT IN CONSIDERABLE EROSION OF DUNE STRUCTURES THROUGH MIDWEEK. LOCALIZED WASHOVERS WILL RESULT IN SOME FLOODING OF ROADWAYS AND VULNERABLE STRUCTURES BEHIND PROTECTIVE DUNES.



Interpreting NWS Forecast Water Level Tables

Explanation of New Format:

THE BATTERY NYC

MLLW CATEGORIES - MINOR 7.2 FT, MODERATE 8.5 FT, MAJOR 9.6 FT

MHHW CATEGORIES - MINOR 2.2 FT, MODERATE 3.5 FT, MAJOR 4.6 FT

DAY/TIME	TOTAL TIDE FT MLLW	TOTAL TIDE FT MHHW	DEPARTURE FROM NORM FT	WAVES FT	FLOOD IMPACT
14/04 PM	5.2/ 5.7	0.1/ 0.6	0.0/ 0.5	1	NONE
15/05 AM	4.6/ 5.1	-0.6/ -0.1	0.0/ 0.5	1	NONE
15/05 PM	5.2/ 5.7	0.2/ 0.7	0.0/ 0.5	1	NONE
16/06 AM	4.7/ 5.2	-0.3/ 0.2	0.0/ 0.5	1	NONE

Day and
Approximate Time
of Peak Water
Level for next 4
High Tides

Range of StormTide
(Astronomical Tide + Surge)
referenced to MLLW and MHHW

Range of
Departure
from
astronomical
tide

Height of
waves on
top of
Storm
Tide

Flood Impact Category
(Minor, Moderate, Major)



Visualizing Coastal Impacts Using Impact Catalogs

NWS Water Level Forecasts

JAMAICA BAY NY
 MLLW CATEGORIES - MINOR 7.5 FT, MODERATE 8.2 FT, MAJOR 9.0 FT
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DAY/TIME	TOTAL TIDE FT MLLW	TOTAL TIDE FT MHHW	DEPARTURE FROM NORM FT	WAVES FT	FLOOD IMPACT
19/09 PM	8.1/ 8.6	2.2/ 2.7	1.3/ 1.8	0	MODERATE
20/09 AM	8.0/ 8.5	2.1/ 2.6	1.2/ 1.7	0	MODERATE
20/09 PM	7.7/ 8.2	1.8/ 2.2	1.0/ 1.5	0	MINOR

COASTAL FLOODING THRESHOLDS, IMPACTS and ANALYSIS

<http://www.weather.gov/okx/coastalflood#coastalbench>

Impacts Catalog



At 8.6 ft MLLW / 6.6 ft NGVD / 2.5 ft MHHW

± to ± 1/2 FT of inundation in the most vulnerable sections of Howard Beach, Old Howard Beach, Hamilton Beach, and Broad Channel. (Morning high tides of 2/9/2016)

South Shore of NYC/LI and Eastern LI

Station	Coastal Flood Benchmarks (MLLW / MHHW / NGVD / NAVD)	Tidal Impacts/Analysis
South Shore Bays		
Rockaway Inlet (USGS) Site ID# 01311875	Minor - 7.3' / 1.8' / 5.5' / 4.4' Moderate - 8.3' / 2.8' / 6.5' / 5.4' Major - 9.3' / 3.8' / 7.5' / 6.4' MLLW - 1.8' = NGVD MLLW - 5.6' = MHHW MLLW - 2.9' = NAVD MHHW + 2.6' = NAVD	Impacts Exceedance Probabilities
Jamaica Bay (USGS) Site ID# 01311850	Minor - 7.5' / 1.6' / 5.5' / 4.4' Moderate - 8.2' / 2.3' / 6.2' / 5.1' Major - 9.0' / 3.1' / 7.0' / 5.9' MLLW - 2.0' = NGVD MLLW - 5.9' = MHHW MLLW - 3.1' = NAVD MHHW + 2.8' = NAVD	Impacts Exceedance Probabilities Coastal Flood Vulnerability

Broad Channel



2) Chose the appropriate Impact Catalog for your tidal gauge of interest, and then view the impacts that have occurred in the past at the MHHW or MLLW water levels corresponding to our latest NWS MHHW or MLLW water level forecast.

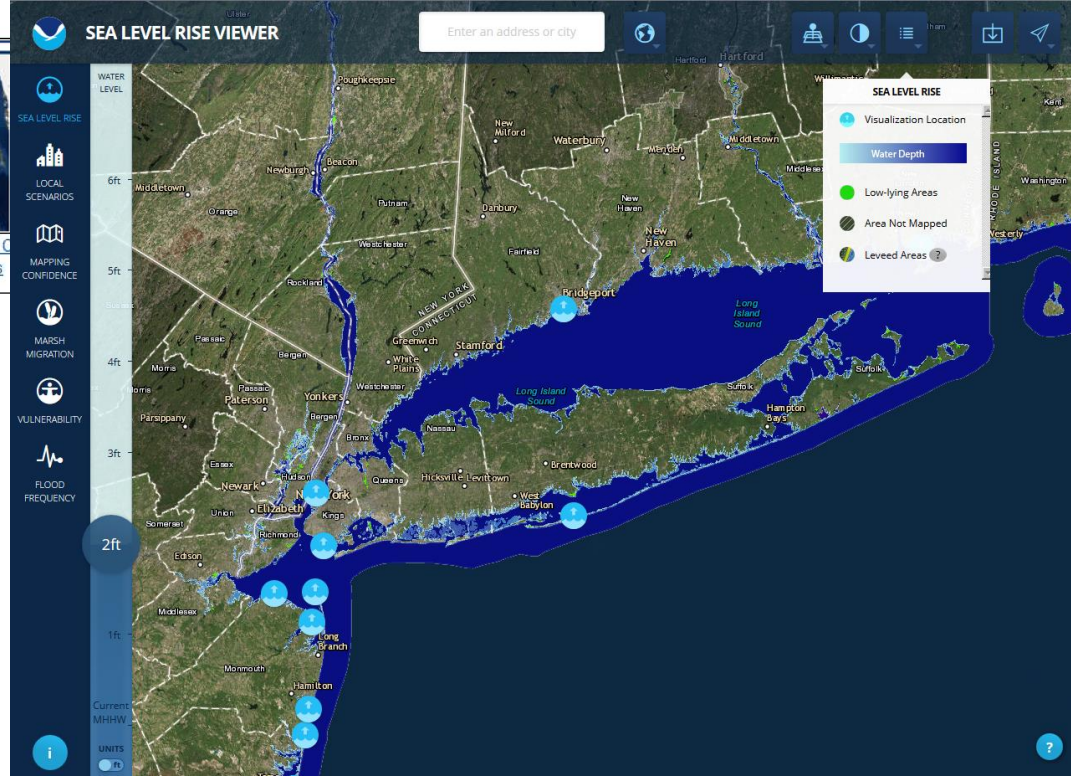


Visualizing Coastal Impacts

Using NOAA Coastal Inundation Viewer

<http://coast.noaa.gov/slr/>

INUNDATION AND IMPACT RESOURCES



<http://www.weather.gov/okx/coastalflood#climo>

Use of Mapping

- Provide a general visualization of inundation from our NWS water level forecasts (tidal tables).
- Map sea level rise on top of mean higher high water (MHHW)

Caveats

- The digital elevation model used to map sea level rise does not incorporate a detailed pipe network analysis, or engineering grade hydrologic analysis (for example, culverts and ditches may not be incorporated resulting in incorrectly mapped areas).

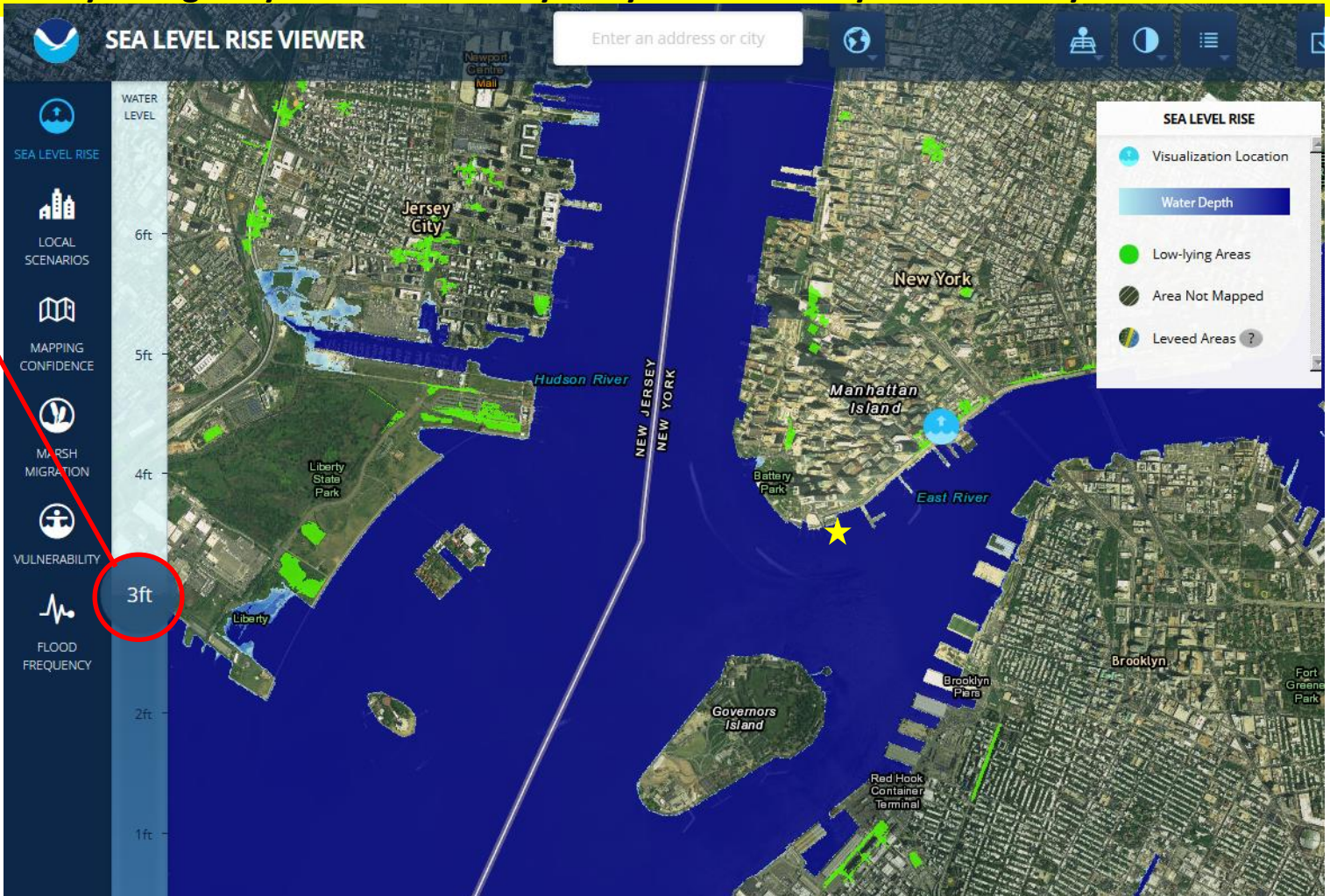


Visualizing Coastal Impacts

Using NOAA Coastal Inundation Viewer



- 3) A- Zoom into your Area of Interest on the map
- B- Move the slider bar to your desired forecast water level height above MHHW
 - Areas shaded in blue are likely to be inundated at the specified water level.
 - Areas shaded in green have an elevation below the expected water level, but are not hydrologically connected to any body of water. They are less likely to be inundated.





Visualizing Coastal Impacts

Putting it all Together!



Use NWS Water Level Forecasts...

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20/09 AM	8.0/ 8.5	2.1/ 2.6	1.2/ 1.7	0	MODERATE
20/09 PM	7.7/ 8.2	1.8/ 2.2	1.0/ 1.5	0	MINOR

...and Impacts Catalog

At 8.5 ft MLLW / 6.3 ft NGVD / **2.6 ft MHHW**
 In South Queens, Hamilton Beach and Broad Channel both experienced significant flooding, and Old Howard Beach had some flooding as well near the Basins, on Sunday morning (8:15 high tide with 2 foot tidal height departure). (1/10/2016)

Hamilton Beach at Davenport CT and Hawtree Basin



...with Inundation Viewer...

Impacts at 3 ft MHHW in Jamaica Bay:

- Inundation in Hamilton Beach
- None for JFK Airport

Sea Level Rise and Coastal Flooding Impacts Viewer

Sea Level Rise: 3 ft SLR

Legend: Water Depth, Low-lying Areas, Area Not Mapped, Visualization Location, Leveed Areas

Overview: Use the slider bar above to see how various levels of sea level rise will impact this area. Levels represent inundation at high tide. Areas that are hydrologically connected are shown in shades of blue (darker blue = greater depth). Low-lying areas, displayed in green, are hydrologically "unconnected" areas that may flood. They are determined solely by how well the elevation data captures the area's hydraulics. A more detailed analysis of these areas is required to determine the susceptibility to flooding.



At 9.5 ft MLLW / 7.3 ft NGVD / **3.6 ft MHHW** (10/29/2012 9-10am)

JFK Airport – Inundation of far south end of runways 22/04 begins

When does JFK start flooding?



3 ft above MHHW

4 ft above MHHW



Visualizing Coastal Impacts



If you have any questions about interpreting NWS coastal flood forecasts and/or understanding the potential coastal flood hazards and impacts, please contact:

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