

NEW YORK
STATE OF OPPORTUNITY

Department of Environmental Conservation

Community Risk and Resiliency Act (CRRA) Implementation Update

NYSBA Environmental and Energy Law Section Annual Meeting 2018

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January 26, 2018

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The Need for Increased Resiliency

Scientific Summary

Studies into scientific agreement on human-caused global warming

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Hottest year ever recorded: 2016

Latest CO₂ reading: **401.77 ppm**
October 22, 2016
Ice-core data before 1958. Mauna Loa data after 1958.

Global Mean Estimates based on Land and Ocean Data

2016 will be here

Estimate made on October 6, 2016 (J.P. Abraham)

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Higher Temperatures: Observed and Predicted

Since 1970

- Annual mean +2.4° F
- Winter mean +4.4° F
- Less snow cover

Change in Days with Snow on Ground 1971 - 2000

Decrease (Days)

- 5-9
- 10-19
- 20-29

Increase (Days)

- 10

Projections

Warmer!

- +1.7 to 3.7°F by 2020s
- +4.4 to 13.6°F by 2100

Hello, Atlanta!

1961-1990
2010-2039
2040-2069
2070-2099

Higher Emissions Scenario
Lower Emissions Scenario

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Precipitation and Flooding

- Historically high natural variability
- Modest increases in annual precipitation-most regions since 1900
- 4-15% total precipitation increase by 2080
 - Mostly in winter
- Increasing frequency, duration, intensity of extreme events

Observed Change in Very Heavy Precipitation

Change (%)

National Climate Assessment

Return period (years)

Rainfall (in)

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Flood Risk in New York

New York Flood Property Damage by County 1960-2012

Property Damage (\$)

- \$100,000,000 - \$500,000,000
- \$50,000,000 - \$100,000,000
- \$10,000,000 - \$50,000,000
- \$1,000,000 - \$10,000,000

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Decade	Losses (millions)
1950s	\$44
1960s	\$37
1970s	\$866
1980s	\$152
1990s	\$757
2000s	\$762
2010s	\$11,547

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Global Sea-level Rise

Global Average Absolute Sea Level Change, 1880-2013

- Recent acceleration:
- 1880-2012 – 0.6 inch/decade
- Since 1993 – 1.1-1.2/inches/decade
- In New York, 1.2 inches/decade since 1850

Data sources:
 • USACE/Comoroswealth Scientific and Industrial Research Organization, 2013 update to data originally published in Church, L.A. and B.J. White, 2011. Sea level rise from the late 19th to the early 21st centuries. *Sea Level Rise*, 153-161.
 • NOAA National Oceanic and Atmospheric Administration, 2014 Laboratory for Satellite Altimetry. Sea level rise. Accessed April 2014. http://climate.noaa.gov/SeaLevelRise/US_2013_Conversion_global
 For more information, visit U.S. EPA's "Climate Change Indicators in the United States" at www.epa.gov/climatechange/indicators.

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New York's Future Climate

- Higher Temperatures and Heat Waves
- Increased Precipitation and Flooding
- Sea-level Rise, Storm Surge and Coastal Flooding
- Greater Storm Intensity
- More Frequent Droughts
- Great Lakes Effects

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Community Risk and Resiliency Act (CRRA)

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Community Risk and Resiliency Act (CRRA)

- Signed into law by Governor Cuomo on September 22, 2014 (Chapter 355 of the Laws of 2014)
- Adds numerous provisions to the Environmental Conservation Law (ECL), as well as to the Public Health Law
- Main goal is ensuring that certain state funding programs, facility-siting regulations, and permits include consideration of the effects of climate risk and extreme-weather events



CRRA's Benefits

- Greater resiliency for communities, infrastructure and ecosystems
- Greater public and staff awareness of climate hazards
- Written standards or criteria for consideration
- Inter-regional and cross-program consistency for climate consideration and permit review
- Standardization of data sources



CRRA's Primary Components

- 1) Adoption of sea-level rise projection regulations [DEC]
- 2) Adds climate-related consideration to existing Smart Growth Public Infrastructure Policy Act (ECL art. 6) criteria [DEC, DOS]
- 3) Model local laws to enhance resiliency [DOS, DEC]
- 4) Consideration of sea-level rise, storm surge, and flooding in specified facility-siting regulations, permits, and funding programs, including implementation guidance [DEC, DOS]
- 5) Guidance on use of natural resiliency measures to reduce risk [DEC, DOS]



Regulatory Programs Covered by CRRA

DEC Permits

- Oil and natural gas wells
- UPA Major projects:
 - Protection of waters
 - Freshwater wetlands
 - Tidal wetlands
 - Coastal erosion hazard areas
 - Mined land reclamation
 - Sewerage service
 - Liquefied natural gas and liquefied petroleum gas facilities

DEC Facility-siting Regulations

- Hazardous waste transportation, storage and distribution facility siting
- Petroleum bulk storage (including conformity with the uniform fire prevention and building code)
- Hazardous substance bulk storage



Funding Programs Covered by CRRA

- Water Pollution Control Revolving Fund (EFC)
- Drinking Water Revolving Fund (DOH, EFC)
- Local waterfront revitalization (DOS)
- Open space acquisition (DEC, OPRHP)
- Agricultural and farmland protection (DAM)
- Landfill closure assistance (DEC)
- Coastal rehabilitation project assistance (DEC)
- Open space project operation and maintenance agreements (OPRHP)



CRRA Implementation Approach

1. DEC adopted a new regulation – 6 NYCRR Part 490, Projected Sea-level Rise – in February 2017
2. Developing State Flood Risk Management Guidance (SFRMG), to be released for public review soon
3. Developing 3 topical guidance documents:
 - a. Smart Growth, connected to SFRMG
 - b. Natural Resiliency Measures
 - c. Model Local Laws
4. Potential for additional program-specific incorporation (subject to appropriate rulemaking or other processes)



6 NYCRR Part 490, Projected Sea-level Rise

- Provides official State projections of sea-level rise over various time-horizons at three different locations
- Based on NYS ClimAID report
- Includes a range of projections based on various emission scenarios
- Does not establish any binding standards
- CRRA statute requires DEC to update sea-level rise projections every 5 years



Official NYS Sea-level Rise Projections – 6 NYCRR Part 490

Inches of rise relative to 2000-2004 baseline

Region	Long Island					New York City/Lower Hudson					Mid-Hudson				
	Low	Low-medium	Medium	High-medium	High	Low	Low-medium	Medium	High-medium	High	Low	Low-medium	Medium	High-medium	High
2020s	2	4	6	8	10	2	4	6	8	10	1	3	5	7	9
2050s	8	11	16	21	30	8	11	16	21	30	5	9	14	19	27
2080s	13	18	29	39	58	13	18	29	39	58	10	14	25	36	54
2100	15	21	34	47	72	15	22	36	50	75	11	18	32	46	71

State Flood Risk Management Guidance

- Non-binding technical guidance to agencies
- Specific guidelines by structure type and location (i.e., tidal/nontidal)
- Builds on the now-rescinded Federal Flood Risk Management Standard (Obama E.O. 13690 revoked by Trump E.O. 13807)
- Principles and guidelines from the guidance document would be available for subsequent incorporation into program-specific guidance or regulations, as well as the Uniform Fire Prevention & Building Code



State Flood Risk Management Guidance

- Focus on site-specific evaluations, not floodplain or inundation mapping
- Does not
 - affect SPDES
 - amend building code
 - address erosion risk
 - require proactive retrofits or upgrades
 - affect FIRMS or NFIP premiums
- Use by municipalities not required

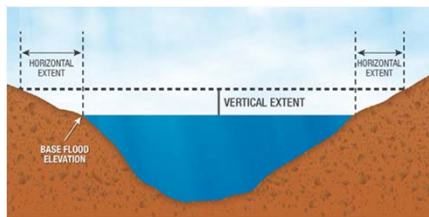


General Flood-risk Management Guidelines (highest of)

- The vertical flood elevation and corresponding horizontal floodplain that result from adding two feet (three feet for critical facilities) of freeboard to the base flood elevation and extending this level to its intersection with the ground.
- The vertical flood elevation and corresponding horizontal floodplain associated with the 0.2-percent annual chance flood.
- The vertical flood elevation and corresponding horizontal floodplain determined by a climate-informed science approach in which adequate, actionable science is available.



BFE + Freeboard, Horizontally Extended



The elevation & horizontal flood hazard area resulting from adding an additional 2 ft. to the base flood elevation (BFE + 3 ft. for critical facilities), and extending this elevation to its intersection with the ground



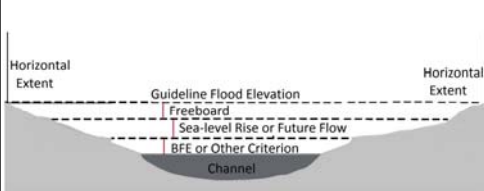
0.2% Annual Chance Flood



The vertical flood elevation and corresponding horizontal floodplain associated with the 0.2-percent annual chance flood (shown in pink here).



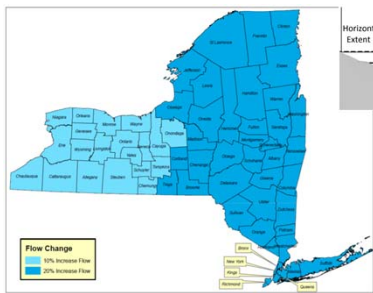
Climate-informed Science Flood-risk Management Guideline



- Tidal Areas
 - Apply specified Part 490 projection
- Nontidal areas
 - Apply regional design-flow multipliers



Climate-informed Science/Nontidal Guideline



Natural Resiliency Measures Guidance

- Resilient coasts (ocean, lake and estuarine coastlines)
- Resilient watersheds (rivers, streams, riparian corridors, wetlands, forests and urbanized areas)



Guidance document to include

- Selected natural features and processes, nature-based features
- Their use in reducing risk
- Co-benefits
- Recommended design criteria



Model Local Law Publication Topics

- Planning
- Risk
- Analysis of Local Land-use Laws
- Land Use Regulation
- Resilient Construction
- Post-disaster Recovery
- Structural Defenses



Resilient NY

“to dramatically enhance community resiliency in the face of extreme weather”

- Announced as part of Governor Cuomo’s 2018 State of the State
- DEC issue resiliency guidelines (CRRRA SFRMG and Smart Growth Guidance)
- DOS recommend building code updates
- DEC update and improve wetland and CEHA maps
- State agencies develop individual adaptation plans
- Financial support for local flood resiliency plans
- Emergency flood response training



Thank You

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