

# Preparing New Jersey For Climate Change: Public Health and Climate Change

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February 7, 2017

Climate change...it's real, it's happening now, and it's affecting New Jersey.



## Climate Change in New Jersey

- More warm extremes and fewer cold extremes
- Heavy rains become more intense
- More frequent dry spells
- Rising sea level with increased frequency and intensity of coastal flooding



## TGERS

# Preparing New Jersey For Climate Change "New Jersey Climate Adaptation Alliance" njadapt.rutgers.edu



### **New Jersey Climate Adaptation Alliance**

The New Jersey Climate Adaptation Alliance was formed in response to a diverse group of stakeholders who came together on November 29, 2011 at Rutgers University to participate in the conference "Preparing NJ for Climate Change: A Workshop for Decision-Makers."

A changing climate and rising sea levels will have a devastating impact on New Jersey's economy, the health of our residents, the State's natural resources, and the extensive infrastructure system that delivers transportation services, energy and clean water to millions of New Jerseyans. The Alliance will focus on climate change preparedness in key impacted sectors (public health; watersheds, rivers and coastal communities; built infrastructure; agriculture; and natural resources) through:

- Conducting outreach and education of the general public and targeted sectoral leaders;
- Developing recommendations for state and local actions through collaboration with policymakers at the state, federal and local levels;
- Undertaking demonstration and pilot projects in partnership with the private sector, local

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#### WHAT'S NEW?

**Conference Announcement** Creating the Healthiest Nation: Climate Changes Health annual meeting and expo hosted by the American Public Health Association will be held from November 4-8, 2017 in Atlanta, Georgia. Abstract deadline is February 20, 2017. More information here.

#### Job Opportunity

Associate Director position available at the Urban Coast Institute at Monmouth University, Application deadline January 31, 2017. More information here.

Regional Plan Association's New Study The Regional Plan Association recently released a study, citing the work of the New Jersey Climate Adaptation Alliance, Under Water: How Sea Level Rise Threatens the Tri- State Region, which details the severe threats posed to parts of New York, New Jersey, and Connecticut metropolitan areas as a result of permanent sea level rise.

#### NJ Sea-Level Rise Reports Read the October 2016 reports related to the New Jersey Climate Adaptation Alliance Science and Technical Advisory Panel on Sea-Level Rise and Coastal

- **Policymakers**
- Private & Public Sector Practitioners
- Business Leaders
- Nongovernmental Organizations
- Academics
- Work Via Existing Delivery Systems
- Facilitated by Rutgers University
- Pre-dated Sandy
- Follows Strategic Workplan and Advisory Committee Direction

Honorary Co-Chairs: Governors James J. Florio and Thomas Kean Co-Chairs: Michael Catania, Duke Farms and Kathleen Ellis, New Jersey Natural Gas

### Academy of Natural Sciences of Drexel University New Jersey Natural Gas

American Littoral Society **Barnegat Bay Partnership Bayshore Recycling Climate Central Delaware River Basin Commission Duke Farms Edgewood Properties** Ferriero Engineering Ironbound Community Corporation Isles, Inc. Kinsey & Hand, Planning Leckner Consulting **Middlesex Water Company** Milano School of International Affairs Monmouth County Regional Health Department **Monmouth University** Mott MacDonald North America **New Jersey Farm Bureau New Jersey Future** 

**New Jersey Work Environment Council** NJ Association for Floodplain Management NJ Audubon **NJM Insurance Group** North Jersey Transportation Planning Authority Partnership for the Delaware Estuary PlanSmart NJ **PSEG Services Corporation Regional Plan Association Rutgers Robert Wood Johnson Medical School Rutgers School of Public Health** Sustainability Institute at TCNJ Swiss Reinsurance America Holding Company **Terhune Orchards** The Louis Berger Group The Nature Conservancy of New Jersey **Thomas Edison State College** 

# Work to date

- Sector specific reports: impacts, best practices, tentative recommendations.
- Stakeholder engagement: two-way communication, identification of policy gaps.
- Analyses to "make the case": evidence-based, wideranging.
- **Community-based decision support:** tools, assistance, demonstration projects.
- **Communications:** materials, workshops, conferences,, videos, etc. Available to all!

## Sector-Based Approach

- •Working Briefs
- •Stakeholder Engagement Report
- •Gap Analysis
- Policy Considerations
- •Other supporting analyses
- •Best Practices guides



### RUTGERS

climate impacts for six major sectors in New Jeney, including agriculture, built infrastructure (utilities and

transportation), coastal communities, natural resources, public health, and water resources. These working beiets present information to be used throughout the Alliance's deliberations to develop recommendations for state and

local public policy that will enhance climate change perparedness and sesilience in New Jeney. These briefs

are living documents that are periodically updated.

2013, for more information about the Alliance and its

This report provides an assessment of public healthbased perspectives on the topic of adaptation planning for climate change in New Jensey, including a description of health care facilities and services

in the state, existing emergency response capacities and communications systems, and other applicable descriptive information. Carnent New Jensey efforts as

well as current and planned adaptation practices and strategies in other states are presented as the basis for a series of recommendations to address additional needs

as a starting point for discussion and prioritization of comprehensive adaptation planning for New Jensey.

ies, visit http://njodopt.rutgers.edu

ment updates a price version from January

THE STATE UNIVERSITY OF NEW JERSEY

A Summary of Climate Change Impacts and Preparedness Opportunities for the Public Health Sector in New Jersey

#### This report is one of a series of working briefs prepared by the New Iensy Climate Adaptation Alliance to preside backsound information on projected New Iensy has a population of approximately 8.7

Now levely he a population of approximately 3.7 million populs, whit 14 vice of the population (1.1 million populs), aged (5 and ever, and 25% of the population (1.1 million populs), aged (5 and a dark). Someone population of Neurosci (1.1 million dark), and the population (1.1 million dark) and the population (1.1 million dark) and the population of trainh and solide. 15% have been part on part with the radion and the solid dark and the population of trainh and solid. 15% have been part on part with the radion and the solid dark and the

NJ Climate Adaptation Alliance

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hospitals perform worse than the national average or



#### Stakeholder Engagement Report: Public Health Climate Change Preparedness in New Jersey

March 2014

Prepared for the New Jersey Climate Adaptation Alliance by George T. DiFordinando, Jr., MD, MFH. Director, Rutgers Center for Public Health Preparedness Sarah Watson. Geward J. Blouzetlen School of Planning and Public Policy, Rutgers University Marjorle B. Kaplan, Dr.P.H. Associate Director, Rutgers Climate Institute

Please cite this report as: New Jersey Climate Adaptation Alliance (NICAA). 2014. Stakeholder Engagement Report: Public Health. Climate Change Prepardness in New Jersey. Edited by George T. DiFerdinando, Jr., Sarah Watson and Marjorie B. Kaplan. New Brunswick, New Jersey: Ruters University.

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#### RUTGERS Best Practices for Public Health Officers

Prepared by the New Jersey Climate Adaptation Alliance May 2014

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Incorporating consideration of future climate projections, including changes in flooding, temperature and precipitation will strengthen engoing efforts of public heath officers to prepare for a changing climate. Information on climate change impacts, as well as trends and projections for New Jersey, can be found via the New Jersey Climate Adaptation Allies at http://climatechange.nutgen.et.edu/publict.

#### What can public health officers do to prepare for and adapt to climate change in New Jersey?

1. Access vulnershifts and aquetity within year jorkstation. Sendity the likely instable of innuis drange in year and the potential table outsome saccode with these dranges. For example, under a many be next vulnerable to all outsome saccode with these dranges. For example, under facility, jorkstation, while occasi semantiation are at high nix for facility. Jord Case containmon during three meeting, or combined series at high nix for instances and the potential during during and the saccode series of the same table in the line of the same series (sample) in the line in the line of the during hear satisfies. Collections and when with community integrations to same the analysis of the during hear satisfies and many same series. In same series (sample) is provided and the same satisfies of these same series in the line integration of the same satisfies of the same sat

 Identify and locate vulnerable populations in your community. Minority and environmental justice communities, the poor, undocumented immigrants, the isleiny, and people with physical and mental disabilities may be dispreportionately vulnerable to climate change and environmental hazards. Determine where in your community vulnerable residents like. Focus on eliminating health digardises by ensuring that

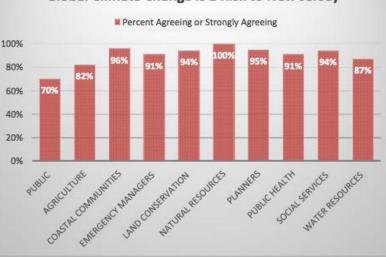




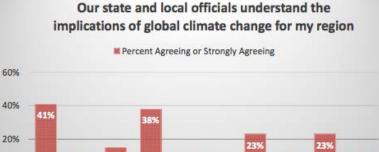
http://njadapt.rutgers.edu/resources/njcaa-reports

## **JTGERS**

### Comparison Among Sector Stakeholders



**Global Climate Change is a Risk to New Jersey** 



11%

NATURA REQURES

11%

15%

AGRICULTURE

PUBLIC

### CORSACOMMUNIES ENERGENCI MANAGES LAND CONSERVATION Source: NJCAA 2013 Surveys of Stakeholder Groups Climate Change Preparedness in NJ

PUBLCHEAUTH

PLANNERS

SOCIASERVICES

WARARSOURCES

## Public Health Stakeholders

- **Public Health Focus Group and On-**• line survey (NJACCHO)
- **Targeted Interviews Reps**
- **NJ Hospital Association**
- **NJ Primary Care Association**
- Health Care Association NJ
- LeadingAge
- NJ ACOG
- **NJ AA Pediatrics**
- **NJ AA Family Practice**
- NJ AC of Physicians
- **Expert Interviews** 
  - **Occupational Health MD (Rutgers)**
  - **Risk Analysis & Public Health (Rutgers)**
  - Vector-Borne Disease (Rutgers)
  - **Toxic Materials (Rutgers)**
  - **Epidemiologist (CDC)**
  - U.S. EPA Program Manager

See: NJCAA 2014 Stakeholder Engagement Report: Public Health Climate Change Preparedness in NJ

## Rutgers

### NJADAPT.ORG





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#### WHAT IS NJADAPT?

NJADAPT

NJADAPT is an orden tool that can be helpful to multiple audiences for samed purposes. It can be used by the general polic, genementer (folcal), besinesses, and non-genemental purposissinal to understand how a change climites a staffic general general audient and the staffic staffic staffic staffic assess in how Jurney. In addition, it is helpful to local dictais, concerned citizes and other how Jeressyns who wish to integrate high quarky data about conductor of a changing climate into state and community parameters and decision-making.

NRDAPT is constatly being imposed. It is being ball to support planning and decision-nating whelled to all impacts of a changing climate necksing area lead insis. Exemplatine changes, procplation changes, island fooding, and decigit. It is consert Version Thom, IRMAPY'' in Accesed on contain flooding, them sample and see lead rise. Over time, additional data will be added to the site or other climate mesods along with properod indicativity the mark Research to a More reports and relates summarking climate tudage impacts in their clearly will be added regularly as well. Sign up being to be notified when determined along with the site of the site of the site of the site.

#### CURRENT MAP STORIES (CLICK TO WATCH)



New Jersey Coastal Flooding Exposure Assessment Coastal communities in New Jersey face an increasing amount of flood risk due to sea level rise. Using a magoing model developed by a team at Rutgers University, this map story illustrates how coastal flood exposure may increase in the future. For full report click HEBE.



#### Monetary Damages for Coastal Flooding: Toms River Case Study

Toms River was severely impacted by Hurricane Sandy. This map story examines how Sandy's storm surge affected property values, as well as how those values may be affected by future flooding due to sea level rise. For full report click <u>HERE</u>.

#### Salt Marsh and Sea Level Rise



Modeling the Fate of New Jersey's Salt Marshes Under Future Sea Level Rise

Sea level rise in New Jersey and elsewhere could substantially affect coastal wetlands. This map story, developed through a partnership of several programs at Rutgers University, explores how sea level nee may affect the salt marshes along the New Jersey coast. For full report click <u>HERE</u>.

Newark - East Ferry

ark's East Ferry Section

#### QUICK LINKS

Coastal Hazard Profiler Create maps that show people, places, and assets exposed to coastal flooding.

NJ FloodMapper Visualization tool for local communities

who need to make decisions concerning defined and sea level rise.

#### Getting To Resilience

Online self-assessment process is a tool to assist communities to reduce vulnerability and increase preparedness.

#### FUTURE MAP STORIES

- FEMA Q3 to PFIRM Changes and SLR
- Historic Shoreline Delineation
- Pollution Sources and Flood Hazards
- Populations Vulnerable to Climate Change in New Jersey: Update of a Statistical Analysis
- Transportation and Climate
- Understanding Climate Change and Flood Risk for New Jersey's Senior Citizens

### **Coastal Hazard Profiler**

#### posure Profiler Seed + Nac + Collect + Typ for Using These Naps Resources He

#### Choose Community Exposure

Choose a section below to view maps showing different aspects of community exposure to food hazards. Pick and choose the best maps to get the flood exposure conversation started in your community. You can also view our map services.



Environment Map

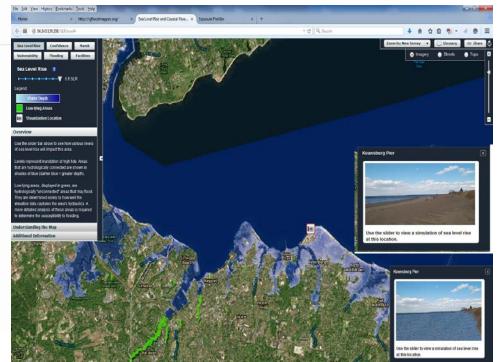
- Infrastructur Map
- Natural areas provide important benefits to coastal communities, inducing hazard protection, flood strange, water quality maniferance, lisheries support, and recreational opportunities. Communities ca increase realience by protecting natural areas along the coast that are supported flooding and adjuscent infand areas.

Community infrastructure, industing roads, Unders bridges, and water and sever instems, can man co to damage the variant file dong, imports Communities should first assess invitantioner variant filesting associated instructure variant filesting associated downing what they are used to protect these association

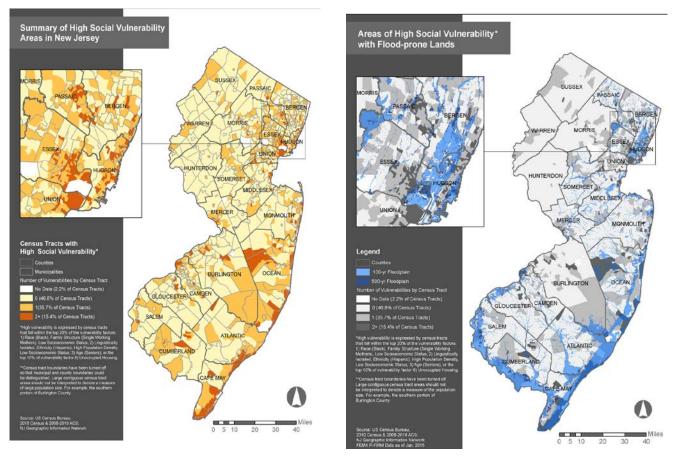
Understanding the populations that live in or near costal flood-prone areas is an important information need, since residents who are elderly, who live in high-deniky areas, or who are inpoversibled may ment apecial considerations.

Man

### NJ FLOODMAPPER



### **High Social Vulnerability and Flood Risk**



### Factors Related to High Social Vulnerability

-race (black), family structure (single parent, female-headed), and low socioeconomic status -linguistic isolation, ethnicity (Hispanic), high population density, and low socioeconomic status -age (seniors)

-high percentages of unoccupied housing (Source: Pflicke et al. 2015)

New Jersey's Changing Shoreline

Climate Change and the Jersey Shore Impacts on Coastal Communities, Ecosystems and Economies

Climate Change and Flood Risk for New Jersey's Senior Citizens

## Videos and Story Maps



### See njadapt.rutgers.edu and njadapt.org



Impacts and Responses



# Two Key Reports Sea-Level Rise and Coastal Storms for NJ

NJ Climate Adaptation Alliance	NJ Climate Adaptation Alliance
Assessing New Jersey's Exposure to Sea-Level Rise and Coastal Storms: Report of the New Jersey Climate Adaptation Alliance Science and Technical Advisory Panel October 2016	Assessing New Jersey's Exposure to Sea-Level Rise and Coastal Storms: A Companion Report to the New Jersey Climate Adaptati Alliance Science and Technical Advisory Panel Report October 2016
Please cite this report as: Kopp, R.E., A Broccoli, B. Horton, D. Kreeger, R. Leichenko, J.A. Miller, J.K. Miller, P. Orton, A. Parris, D. Robinson, C.P. Weaver, M. Campo, M. Kaplan, M. Buchanan, J. Herb, L. Auermuller and C. Andrews. 2016. Assessing New Jersey's Exposure to Sea-Level Rise and Coastal Storms: Report of the New Jersey Climate Adaptation Alliance. Science and Technical Advisory Panel. Prepared for the New Jersey Climate Adaptation, Alliance. New Brunswick, New Jersey.	Please cite this report as: Kaplan, M., M. Campo, L. Auermuller, and J. Herb. 2015. Assessing New Jersey's Exposure to Sea-U- Rise and Coastla Storms: A Companion Report to the New Jersey Climate Adaptation Alliance Scien and Technical Advisory Panel Report. Prepared for the New Jersey Climate Adaptation Alliance. N Brunewidt, NJ: Rutgers University.

Science and Technical Advisory Panel Report

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**Companion Report** 

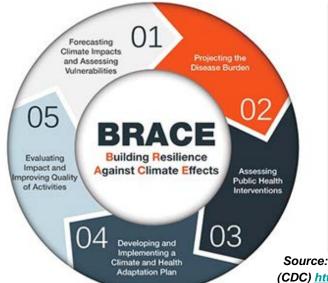
## Rutgers

# Climate Change and Public Health Working Group

Mission: to work in partnership with New Jersey's public health community to help enhance the public health community's climate preparedness.

- -Builds Upon NJCAA work (2011 present)
- -Rutgers participates in CDC Community of Practice (2015 present)
- -Workgroup Convened Fall 2015
- -Public Health and Climate Change Workshop for Public Health Practitioners June 2016 (http://njadapt.rutgers.edu/past-events/june-3-2016-public-health-workshop)

-Follows CDC Building Resilience Against Climate Effects (BRACE) Framework to address climate change effects on public health in NJ



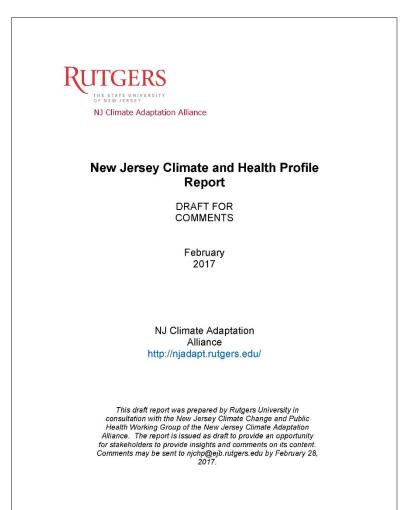
Source: Centers for Disease Control and Prevention (CDC) <u>http://www.cdc.gov/climateandhealth/brace.htm</u>

# Climate Change And Public Health Working Group

Pediatrics
NJ Environmental Justice Alliance
NJ Health Initiatives
Drexel University School of Public
Health
NJ Environmental Heath Association
NJ Medical School
<b>Rutgers Robert Wood Johnson Medical</b>
School

## Rutgers

# NJ Climate Change and Health Profile Report



### **Primary Sections**

Baseline Climate Assessment Climate Projections Causal Pathways Vulnerable Populations Next Steps

### **Topics Covered**

- -Temperature
- -Precipitation
- -Sea-Level Rise
- -Air Quality
- -Extreme Precipitation and Storms
- -Ecosystem Changes and Threats

Hazard	Climate Impact	Health Impacts
Air Quality Changes	<ul> <li>Increased ground- level ozone</li> <li>Fine particulate matter changes</li> <li>Pollen and allergen production</li> </ul>	<ul> <li>Respiratory illness</li> <li>Cardiovascular disease</li> <li>Mortality</li> </ul>
Extreme Heat	<ul> <li>Increased frequency and intensity of heat waves</li> </ul>	<ul> <li>Heat-related illness and mortality</li> <li>Exacerbation of existing medical conditions</li> <li>Greater stress on electricity systems potentially leading to health outcomes associated with power outages</li> </ul>
Precipitation Changes and Storms	<ul> <li>Flooding</li> <li>Storms</li> <li>Drought</li> <li>Wildfire</li> </ul>	<ul> <li>Injuries and fatalities</li> <li>CO2 poisoning</li> <li>Food and water contamination</li> <li>Stress and mental health impacts</li> <li>Respiratory illnesses</li> <li>Mold exposure</li> <li>Food insecurity</li> </ul>
Ecosystem Changes and Threats	<ul> <li>Changes in Disease Vector Reproduction and migration patterns</li> </ul>	<ul> <li>Vector borne illnesses</li> <li>Food and water borne illnesses</li> <li>Harmful Algae Blooms (HABs)</li> </ul>

### Table 1. Overview of Projected Climate Change and Health Impacts in New Jersey

# DRAFT RECOMMENDATIONS

	Act	•Implement specific initiatives identified in consultation with public health community
	Plan	•Integrate climate science and consideration of climate change impacts into existing public health planning, programs and decision making processes
	Assess	•Assess disease burden as a result of a changing climate and identify vulnerable populations and appropriate interventions
	Support	•Develop and assist in the deployment of tools and other resources to support local public health practitioners
(	Build Capacity	•Expand the ability of NJ's public health practitioners to undertake interventions to address public health-related climate change impacts

### PUBLIC COMMENTS THRU END OF FEBRUARY njchp@ejb.rutgers.edu

## For more information

## **Connect with Us**

climatechange.rutgers.edu njadapt.rutgers.edu NJADAPT.ORG

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www.facebook.com/RUClimateInstitute

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