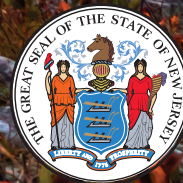


2020 NEW JERSEY  
SCIENTIFIC REPORT ON  
**CLIMATE  
CHANGE**  
*AT-A-GLANCE*



**Rising  
Temperatures**



**Increasing  
Precipitation**



**Sea-Level  
Rise**



**Ocean  
Acidification**



**Decreased  
Water Quality**



**Extreme  
Weather**



**Drought**



**Decreased  
Air Quality**

# 2020 NEW JERSEY SCIENTIFIC REPORT ON CLIMATE CHANGE

The New Jersey Department of Environmental Protection (DEP) led a comprehensive effort to synthesize the latest and most reliable scientific information on the current and predicted future impacts of climate change through the first state-led *Scientific Report on Climate Change*. The purpose of this report is to inform State and local decision-makers as they understand and respond to the impacts of climate change. These impacts are significant and wide-ranging,

requiring a comprehensive and forward-thinking response by all levels of government, economic sectors, communities, and populations. The *Report* is one component of the State's comprehensive strategy to both reduce emissions of climate pollutants that fuel global warming, and proactively plan and prepare for the climate impacts that New Jersey cannot avoid.

## CLIMATE CHANGE EFFECTS - WHAT WILL HAPPEN IN NEW JERSEY?

### Rising Temperatures



New Jersey is warming faster than the rest of the Northeast region and the world.

Heatwaves are expected to impact larger areas, with more frequency and longer duration by 2050.

### Increasing Precipitation



Annual precipitation in New Jersey is expected to increase by 4% to 11% by 2050.

The intensity and frequency of precipitation events is anticipated to increase due to climate change.

### Sea-Level Rise



Sea-levels are increasing at a greater rate in New Jersey than other parts of the world.

By 2050, there is a 50% chance that sea-level rise will meet or exceed 1.4 feet and a 17% chance it will exceed 2.1 feet. Those levels increase to 3.3 and 5.1 feet by the end of the century (under a moderate emission scenario).

### Ocean Acidification



Since the industrial age, ocean pH levels have declined and the ocean is now 30% more acidic.

If carbon dioxide emissions continue at current rates, ocean pH levels are expected to fall, creating an ocean that is more acidic than has been seen for the past 20 million years.

29%

of New Jersey's bird species are vulnerable to climate change.

New Jersey's temperature since 1895 has increased



Projected losses of marshes in the Delaware Estuary by 2100.

92%

Brackish Marshes

32%

Tidal Swamps

6%

Tidal Fresh Marshes



"Sunny day flooding" will occur more often across the entire coastal area due to sea-level rise.



The intensity & frequency of precipitation events is anticipated to increase due to climate change.

Sea-levels are increasing at a greater rate in New Jersey than other parts of the world.



- 2020 New Jersey Scientific Report on Climate Change

## CLIMATE CHANGE EFFECTS - WHAT WILL HAPPEN IN NEW JERSEY?

### Decreased Water Quality



Surface and groundwater quality will be impaired as increased nutrients and contaminants enter waters due to runoff from more intense rain events.

Freshwater intakes and aquifer recharge areas may be threatened if sea-level rise pushes the salt front further upriver.

### Extreme Weather



Tropical storms have the potential to increase in intensity due to the warmer atmosphere and warmer oceans that will occur with climate change.

Over the last 50 years, in New Jersey, storms that resulted in extreme rain increased by 71% which is a faster rate than anywhere else in the United States.

### Drought



Droughts may occur more frequently due to the expected changes in precipitation patterns.

It is anticipated that droughts lasting three to six months and longer may slightly increase in frequency in the Northeastern United States under a low emissions scenario and will significantly increase under a high emissions scenario.

### Decreased Air Quality



Despite on-going efforts to reduce ground-level ozone precursor emissions, New Jersey's air quality will be impacted due to changes in meteorological conditions, often referred to as the ozone-climate penalty which is "the deterioration of air quality due to a warming climate."

# CLIMATE CHANGE IMPACTS - HOW WILL NEW JERSEY BE AFFECTED?



## **SOCIALLY VULNERABLE POPULATIONS**

- Young children, elderly, socially or linguistically isolated, economically disadvantaged, and those with preexisting health conditions will be more at risk to health impacts from the combination of heat stress and poor urban air quality.



## **INFRASTRUCTURE**

- Aging public water supply infrastructure is vulnerable to the consequences of climate change.
- Existing water treatment infrastructure in New Jersey is not designed to treat elevated salt levels and drinking water standards do not exist for the primary components of saltwater.



## **HEALTH AND WELLBEING**

- The effects of climate change are likely to contribute to an increase in air pollution, lead to increased respiratory and cardiovascular health problems.
- Urban populations are particularly vulnerable as climate models predict an increase in the number of days per year with temperatures affecting human health due to heat stress.



## **ECOSYSTEMS AND WILDLIFE**

- Climate change is likely to facilitate expansion of invasive plant species.
- 29% of New Jersey's bird species are vulnerable to climate change.



## **COASTAL COMMUNITIES**

- "Sunny day flooding" will occur more often across the entire coastal area of New Jersey due to sea-level rise.
- Coastal areas are particularly vulnerable to flooding from storm surge and increased intensity of coastal storms.



## **AGRICULTURE AND FOOD SUPPLY**

- The productivity of crops and livestock are expected to change due to the climate-induced changes in temperature and precipitation patterns.

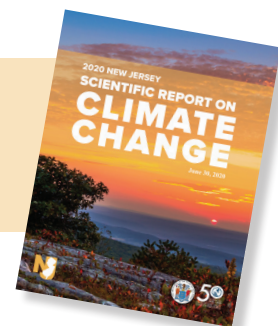


## **OCEANS AND MARINE LIFE**

- Ocean acidification not only threatens the health of the oceans, but also the economic value that people and industries depend on.

To view the full Scientific Report on Climate Change, visit: [nj.gov/dep/climatechange](https://nj.gov/dep/climatechange)

For more information, contact: [climateresilience@dep.nj.gov](mailto:climateresilience@dep.nj.gov)



**Michael Baker**  
INTERNATIONAL