

New Jersey ~ Adapting to Climate Change

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Climate Terminology

- **Climate Change Mitigation** - human intervention to reduce the sources or enhance the sinks of heat trapping greenhouse gases (GHG) to avoid the unmanageable (catastrophic) consequences of global warming
 - **Climate Change Adaptation*** - the range of adjustments of a system (human and natural) to manage the unavoidable aspects of climate change (including climate variability and extremes), its moderation of potential damages, taking advantage of opportunities, and coping with adverse consequences
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Global Warming Response Act

Recommendations Report on Adaptation

- Adaptation planning at all levels of government is key to minimizing the public health, environmental and economic damage that is expected to increase in the coming years and undoubtedly will require individual change to reduce vulnerability in the long term.
 - The State proposes to engage experts from academia, government, non-governmental organizations, and the business community in developing policy recommendations on the most pressing adaptation policies New Jersey should adopt to significantly reduce the State's risks from climate change impacts.
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Adaptation Planning

- In response to the adaptation planning recommendation, the DEP formed an interdisciplinary working group designed to coordinate and collaborate on various on-going NJ adaptation efforts and scope out an overarching adaptation plan for the State
 - Currently developing a process for moving adaptation planning forward
 - A second working group was also formed to assess the specific water-related needs stemming from climate change
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DEP Science Advisory Board

- Climate and Atmospheric Sciences Committee

Which aspects of **climate change** should be considered at this point to be inevitable, and how should NJ best adapt to these? What additional studies are indicated to assess statewide vulnerabilities to global warming and **sea level rise**, and how can these studies be linked to adaptive land use management practices, open space protection, and resource utilization?

On-Going State Adaptation Initiatives ~ Economic Impact of Inaction

- A study lead by the City University of New York (CUNY), in collaboration with team members from Rutgers and Columbia Universities, is currently underway.
 - Designed to estimate the economic consequences (costs and benefits) of climate change for ten sectors of New Jersey's economy during 21st century, with a primary focus on 2020s and 2050s.
 - Sectors are ecosystem health, species habitat, water, fisheries, agriculture, tourism, energy, transportation, insurance and public health.
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On-Going State Adaptation Initiatives ~ Coastal Community Hazard Resiliency

- DEP's Office of Coastal Management and Watershed Restoration is finalizing development on two planning tools:
 - A GIS-based mapping methodology that relies on a coastal vulnerability index to identify hazard prone lands. Incorporates variables (e.g., geomorphology, slope, flood prone areas, storm surge inundation, soil drainage, and erosion), Sea Level Rise scenarios and their impacts on present storm surge models
 - Getting to Resiliency Questionnaire: To facilitate discussion among land use planners, hazard mitigation planners, emergency managers and municipal officials about a coastal community's vulnerabilities and risks to SLR and storm surge.



Image credit: Beach erosion, replenished sand; Norb Psuty, Rutgers University.

On-Going State Adaptation Initiatives ~ Wildlife Vulnerability Assessment

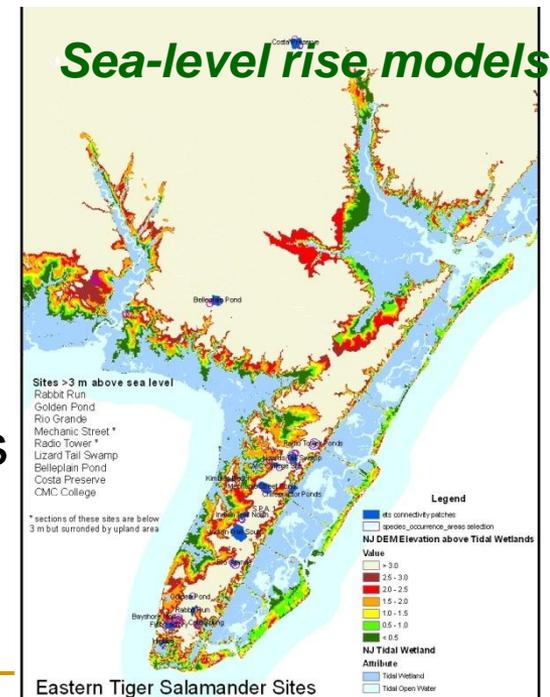


Image credit: NJ.com

- The DEP is leading a multi-stakeholder working group, at various stages, focused on the adaptive needs of NJ's wildlife species and habitats.
- Have an approved proposal from Rutgers University to conduct a vulnerability assessment of a subset of New Jersey's habitat & focal wildlife species; DEP is currently working on developing a contract and identifying funding source(s).
- Will use assessment's findings to develop a habitat management guidance document for habitats and wildlife vulnerable to climate change impacts. This information will be integrated into the State Wildlife Action Plan.

On-Going State Adaptation Initiatives ~ Eastern Tiger Salamander Project

- This species is documented in only 15 sites in NJ, 6 of these sites are predicted to be impacted by sea-level rise.
- 2011 - NJ Fish & Wildlife is creating new breeding habitat for this species on state land outside of sea-level rise risk areas.
- Winter 2011/2012 – NJDFW is partnering with the Cape May Co. Zoo and Montclair University to “head start” tiger salamanders from egg mass of “at risk” sites. 50% of head started salamanders will be placed into newly created breeding ponds.



On-Going State Adaptation Initiatives ~ Wetlands Assessment

- ❑ 2011 National Aquatic Resource Survey: Wetlands Focus in NJ

Intensive study of 20 sites every 5 years (Year 1: 13 coastal wetlands and 7 freshwater wetlands)

- ❑ Statewide Wetlands Condition Assessment: 2011-2013 (1 of 9 national grants)

70 permanent FW and Tidal sites will include C sequestration and soil data, vegetation, and hydrology as subset of a 550 site statewide assessment of 7 wetland types being developed for NJ.

Freshwater Tidal Marsh



Photo by Kathleen Walz, NJDEP Office of Natural Lands Management

Manumuskin River,
Cumberland County, NJ

On-Going State Adaptation Initiatives ~ Sustainable Jersey

- NJDEP co-chairs the Sustainable Jersey Climate Adaptation Task Force (CATF)
 - Goal of the CATF is to identify/develop tools and guidance for local governments who want to make climate preparedness planning part of their Sustainable Jersey initiative.
 - CATF is currently considering tools to:
 - Help communities self-assess, at a very high level, their potential vulnerabilities and risks to climate change
 - Help communities visually understand their vulnerabilities and risks.
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On-Going State Adaptation Initiatives ~ Transportation Assessment

- The State's 3 MPOs, in partnership with DEP, DOT, and NJ Transit, is currently using grant monies to pilot the FHWA's vulnerability and risk assessment conceptual model using New Jersey transportation infrastructure in 2 study areas
 - A riverine area along the Delaware
 - One coastal area along the Atlantic Ocean
- The project kicked off April 15th and is scheduled to wrap up November 30th

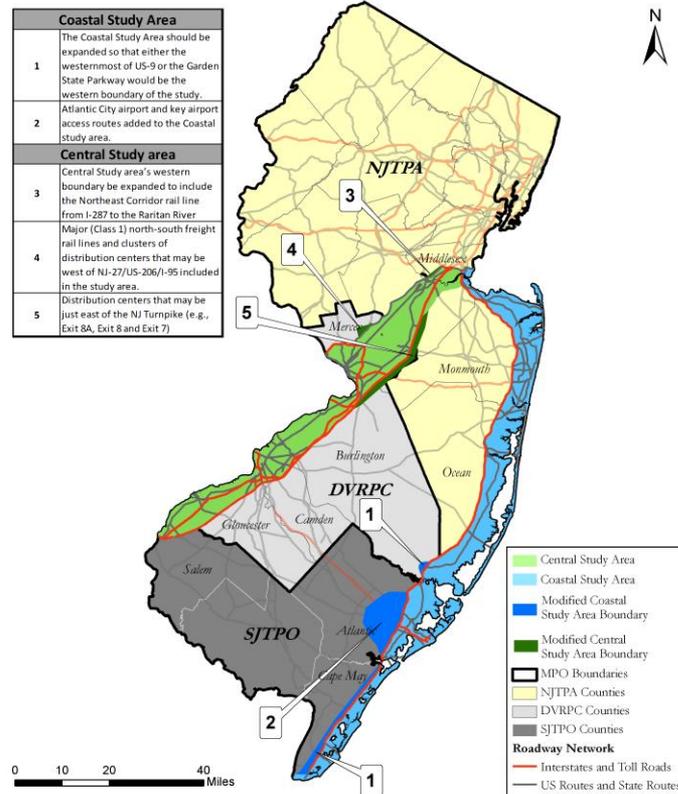


Image credit: Delaware River at Washington Crossing bridge (9-19-2004): Mike Aucott, NJDEP

On-Going State Adaptation Initiatives ~ Transportation Assessment

FHWA Study Areas

Climate Change Vulnerability Analysis in New Jersey
Central and Coastal Study Areas



Regional and Federal Adaptation Initiatives

- NJ participates in the Mid-Atlantic Regional Council on the Ocean (MARCO), and one of their objectives is to identify regional transportation infrastructure that is vulnerable to sea level rise and increased flood hazards.
 - NJ participates on a Northeastern States for Coordinated Air Use Management (NESCAUM) Adaptation Workgroup designed to coordinate and collaborate on regionwide adaptation issues (e.g., data collection and storage, shared frameworks, and communications)
 - NJ participates in U.S. EPA's Climate-Ready Estuaries Program.
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