GEORGETOWN LAW

Georgetown State and Federal Climate Resource Center

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Climate Change and Public Health: A look at emerging state proposals and action

November 9, 2009

Presentation to the
American Public Health Association

Climate Change & Public Health in the States

- Public Health Impacts of Climate Change
- What States and Localities are Doing
  - Planning – California and others
  - Implementation – Chicago, Maryland, and New York City
- State-Relevant Provisions of Congressional Bills
  - Waxman-Markey (House) and Kerry-Boxer (Senate)

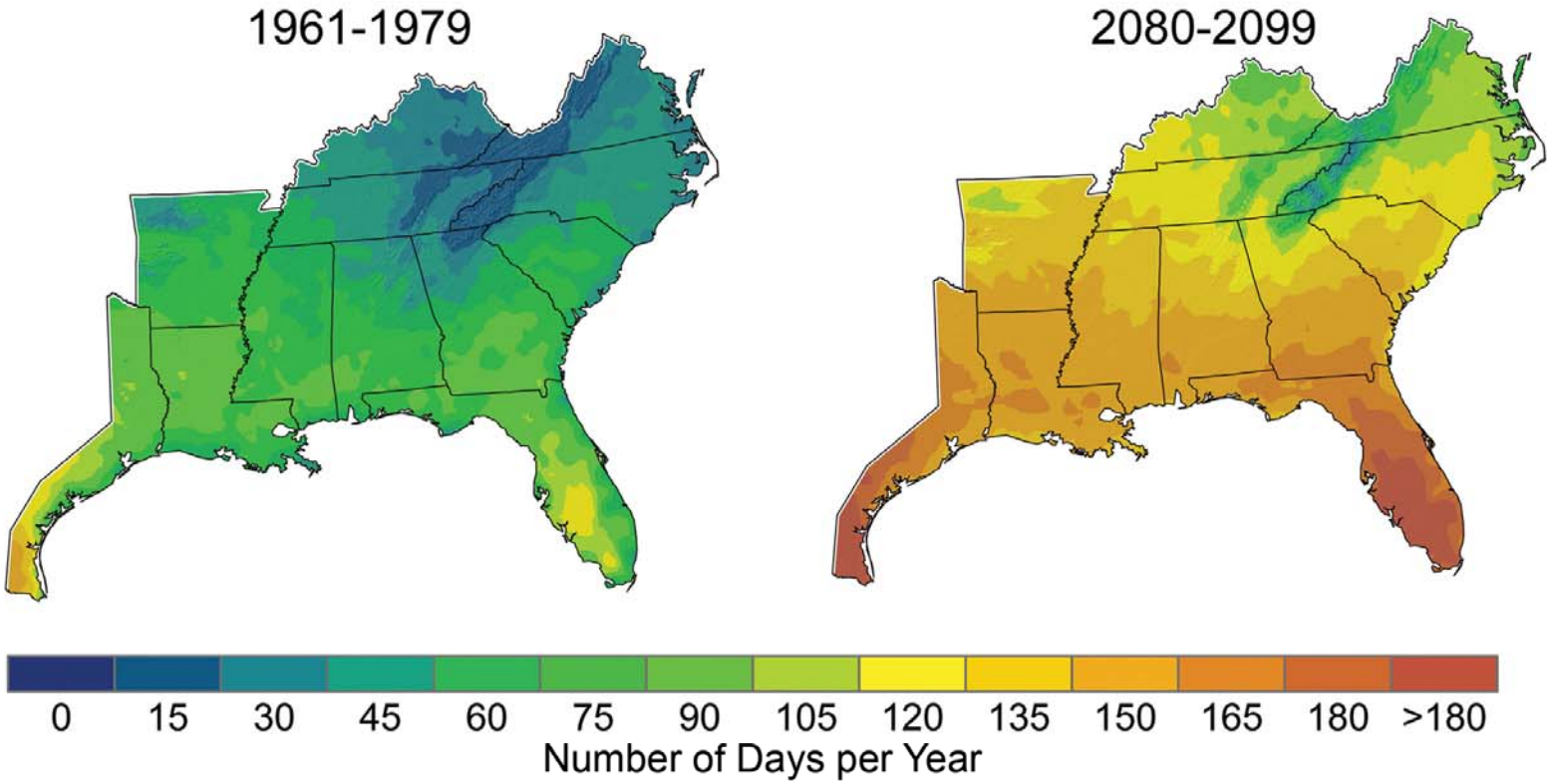
Projected Regional Impacts

North America

- Decreased water in the West (very high confidence)
- Increased wildfire (very high confidence)
- More frequent and intense heat waves in cities where they already occur (very high confidence)
- Coastal areas are especially vulnerable to the interacting effects of development, pollution, and climate change (very high confidence)
- Increases in risk and geographic spread of vector-borne infectious diseases (very high confidence)

-IPCC 2007

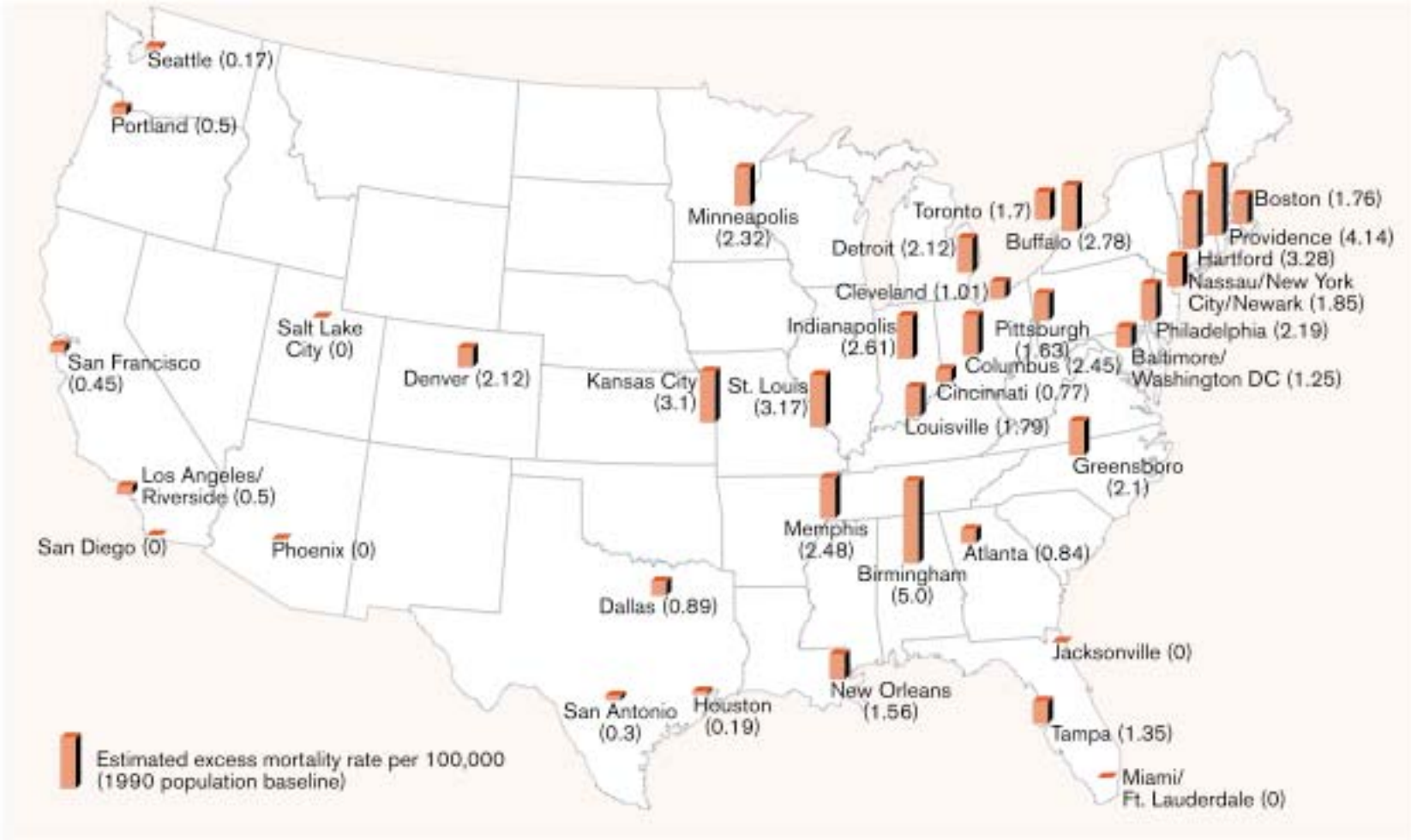
Projected Heat Increases – Southeast U.S.



The number of days per year with peak temperature over 90ºF is expected to rise significantly, especially under a higher emissions scenario[91] as shown in the map above. By the end of the century, projections indicate that North Florida will have more than 165 days (nearly six months) per year over 90ºF, up from roughly 60 days in the 1960s and 1970s. The increase in very hot days will have consequences for human health, drought, and wildfires.

Source: USGCRP, 2009

Projected Increases in Heat-Related Mortality



Note: Locations shown with a value of 0 may have deaths that are attributed to excessive heat exposure. This result simply means that there has not been a measurable increase in mortality from any cause during EHEs compared to other summertime periods.

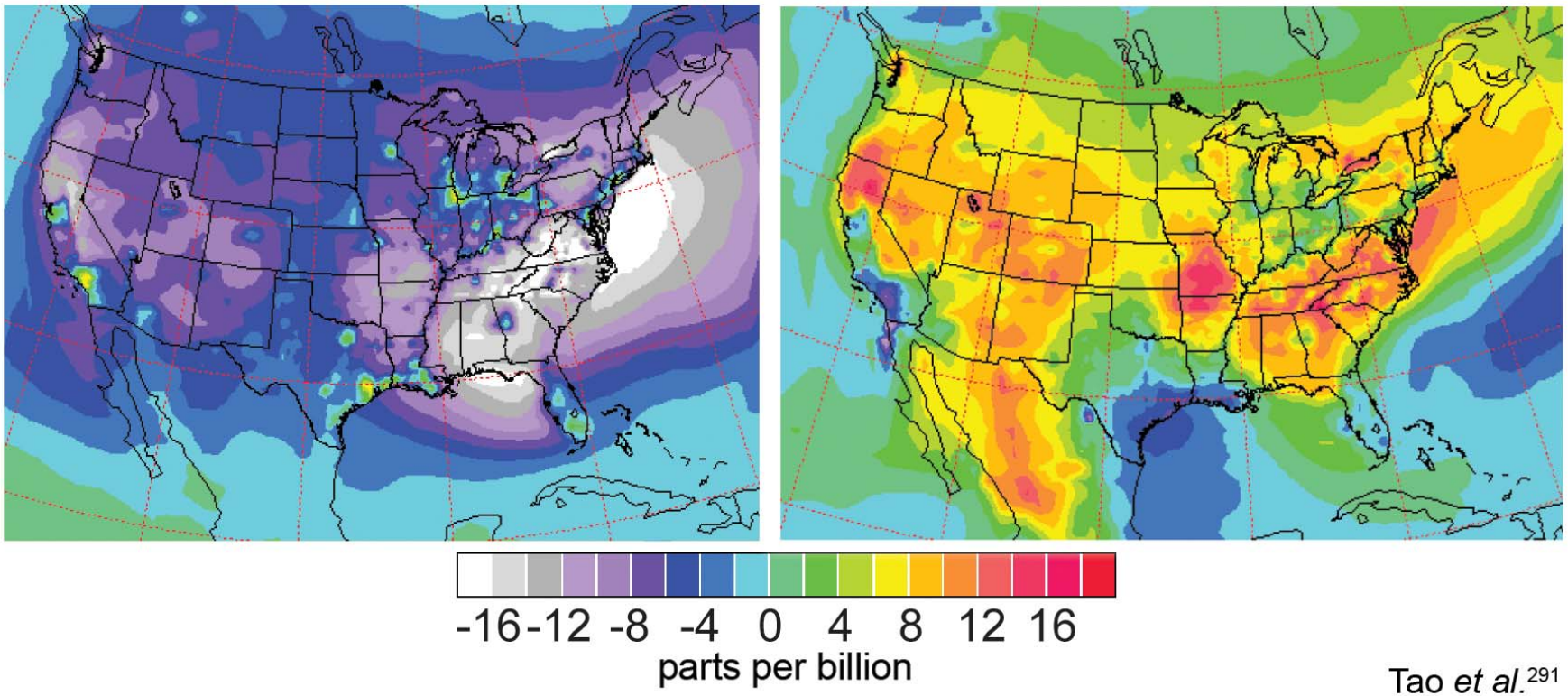
Sources: Original mortality estimates from Kalkstein and Greene (1997). Converted to rates with the 1990 Census population estimates for the SMSAs. Toronto results from personal communication with N. Day, Toronto Public Health (2005).

Source: EPA, 2006

Increases in Ground-Level Ozone

Lower Emissions Scenario[91]

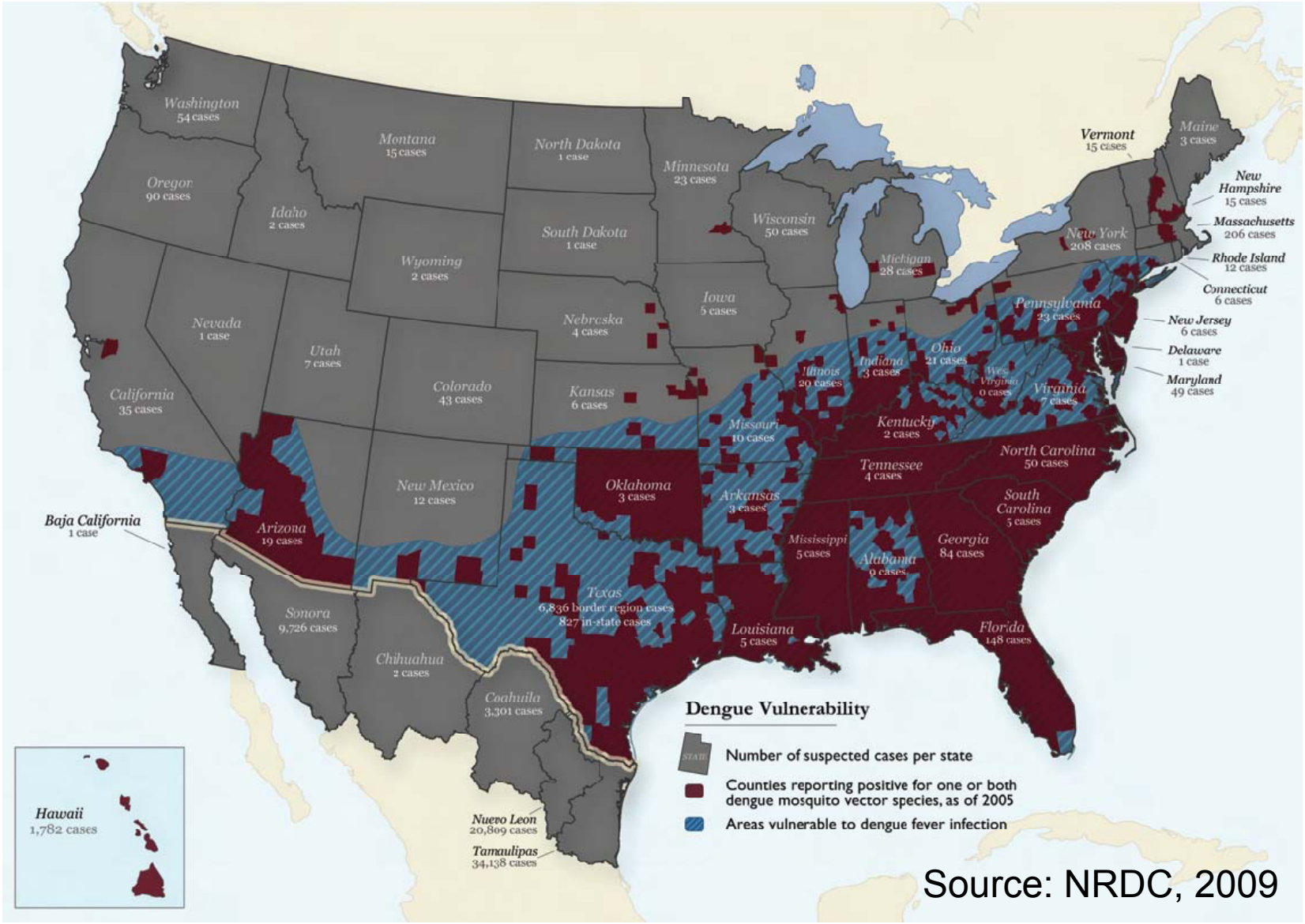
Higher Emissions Scenario[91]



Tao *et al.*[291]

Source: USGCRP, 2009

Dengue Fever in the United States



Source: NRDC, 2009

Sea Level Rise

Comparing Inundation with Current and Projected (2080s) Sea Level Estimates

CASE STUDY: 100-YEAR STORM

- Projected Inundation Zone Estimates (current sea level)
- Projected Additional Inundated Area IPCC B1 (13.8 inch sea level rise)
- Projected Incremental Additional Inundated Area IPCC A1B (16.7 inch sea level rise)
- Water Pollution Control Plant
- Pump Station

Storm Surge Data Source: FEMA Flood Insurance Study, 2/15/91
Sea level rise estimates based upon Goddard Institute of Space Studies Atmospheric-Ocean Model using International Panel on Climate Change greenhouse gas emission scenarios for 2080s.

Mapping by HydroQual

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Source: New York City Dept. of Env. Prot., 2008

A two-tiered approach is needed

"Avoiding the unmanageable and managing the unavoidable"*

Avoiding the unmanageable → mitigation

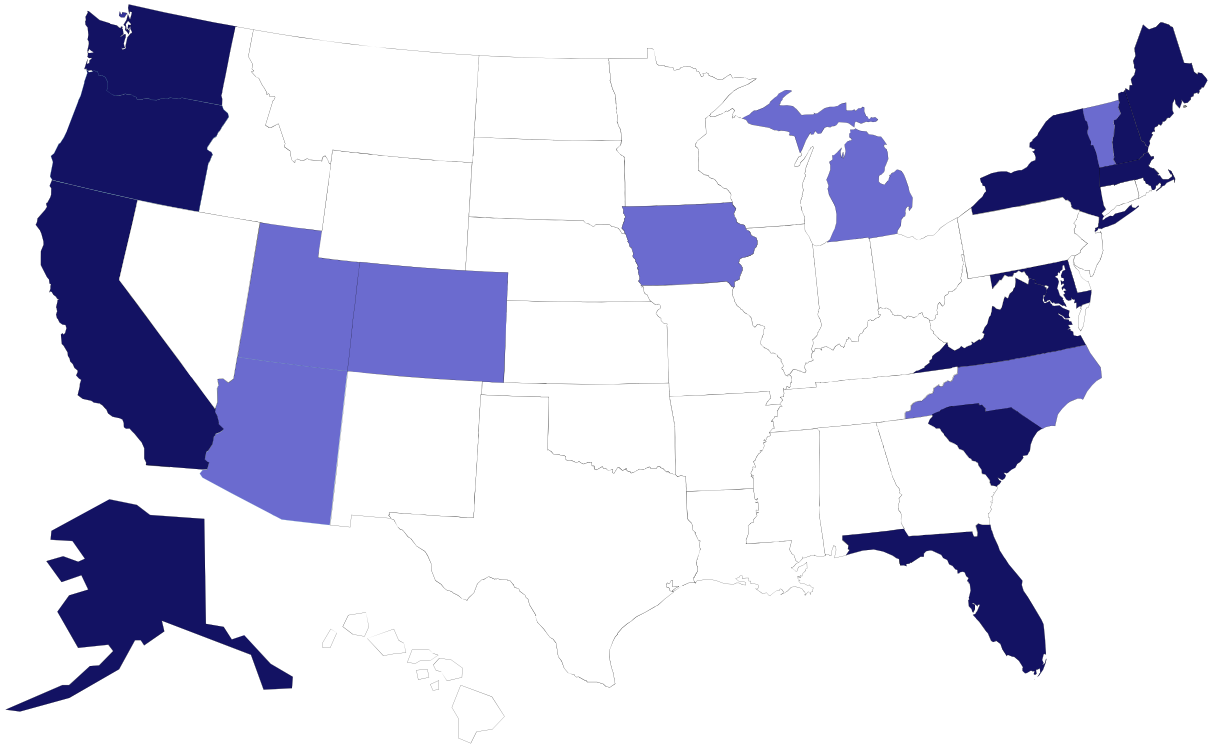
- Emissions reduction policies at state, regional, federal, and international levels

Managing the unavoidable → adaptation

- Preparedness, resilience, ecosystem management, protecting vulnerable populations

*Title of the UN Foundation Scientific Expert Group Report on Climate Change and Sustainable Development

Statewide Adaptation Planning Efforts



State Adaptation Plans complete or in-progress

Adaptation Plan recommended in Climate Action Plans

Adapted from Pew Center on Global Climate Change

12 states have started state-wide adaptation planning. Impacts vary by locale; driving limited resources for planning and action, as well as research priorities.

States – Adaptation Planning Areas

State	Agriculture	Biodiversity / Ecosystems	Economic Systems	Oceans / Coastal	Forestry	Human Health / Public Health	Infrastruc-ture	Water
AK	✓	✓	✓	✓	✓	✓	✓	
CA	✓	✓		✓	✓	✓	✓	✓
FL		✓		✓		✓	✓	✓
MA		✓	✓	✓		✓	✓	
MD[1]		✓		✓		✓	✓	
NH	✓	✓	✓	✓		✓		✓
OR		✓	✓			✓	✓	
VA		✓		✓		✓	✓	✓
WA	✓			✓	✓	✓	✓	✓

Source: T.Cruce for the Georgetown Climate Center

State Adaptation Planning - California

California Adaptation Planning Process

November 08 – Executive order signed directing agencies to plan for sea level rise and climate impacts

June 09 – State Climate Adaptation Strategy (draft) released

- 7 Sectors Covered: Water, Public Health, Biodiversity and Habitat, Ocean and Coastal Resources, Agriculture, Forestry, and Transportation and Energy Infrastructure
- Assess impacts, identify vulnerabilities, develop solutions to promote resiliency

September 09 – Public comment period ended

California Adaptation – Public Health Sector

Public Health Sector: Selected Strategies

- Promote community resilience to reduce vulnerability to climate change
- Identify and promote mitigation and adaptation strategies with public health co-benefits; e.g., promoting “smart growth”
- Establish, maintain, and improve public health surveillance of environmental and public health conditions
- Improve public health preparedness and emergency response

Implementation – Chicago

Chicago Climate Action Plan (2008) focuses on:

- Efforts to reduce greenhouse gas emissions and
- Plans to adapt to coming climate change

Public health-specific adaptation efforts include:

- Updating Chicago's emergency response planning, with an emphasis on vulnerable groups;
- Installing reflective and other "cool" and "green" roofs to reduce indoor temperatures on hot days
- Increasing the size of the urban forest canopy to further cool buildings
- Mapping urban heat islands to effectively target cooling efforts.

Implementation – Chicago

Source: Chicago Climate Action Plan, 2008

Implementation – Maryland

Phase I: MD agencies will

- complete a gap analysis to evaluate management and coordination capacity to respond to large-scale floods and storms
- conduct health impact assessments to evaluate the public health impacts of climate change
- develop and improve surveillance and control of vector-borne diseases likely to increase

Phase II will focus on how six sectors, including human health, are impacted by:

- increased temperatures,
- changes in precipitation, and
- increased storms

Implementation – New York City

New York City adaptation focus:

- impacts on drinking water,
- stormwater, and
- other responsibilities of the Dept. of Environmental Protection.

Sea-level rise and wastewater treatment plants policy options under consideration include:

- Raising elevations of critical facilities and constructing watertight windows and doors to protect control rooms, etc.
- Development of protective barriers such as seawalls
- Gradual retreat from the most at-risk areas

State-relevant Provisions in Federal Bills

American Clean Energy and Security Act (Waxman-Markey H.R. 2454), passed in June 2009

- Support of State Adaptation Provisions: Distributes allowances, requires states to develop adaptation plans in order to receive those allowances
- Public Health and Climate Change: Requires HHS to create a national strategic plan to assist health professionals in preparing for and responding to the impacts of climate change on public health; requires consultation with state and local governments

American Clean Energy Jobs and American Power Act (Kerry-Boxer S. 1733)

- Support of State Adaptation Provisions: Similar to the House bill, and requires state plans to include impacts on vulnerable populations
- Public Health and Climate Change: no parallel provision to House bill

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