

# SUMMARY RISK ASSESSMENT DOVER, NH

DANYA RUMORE (MIT AND CBI)  
CARRI HULET (CBI)

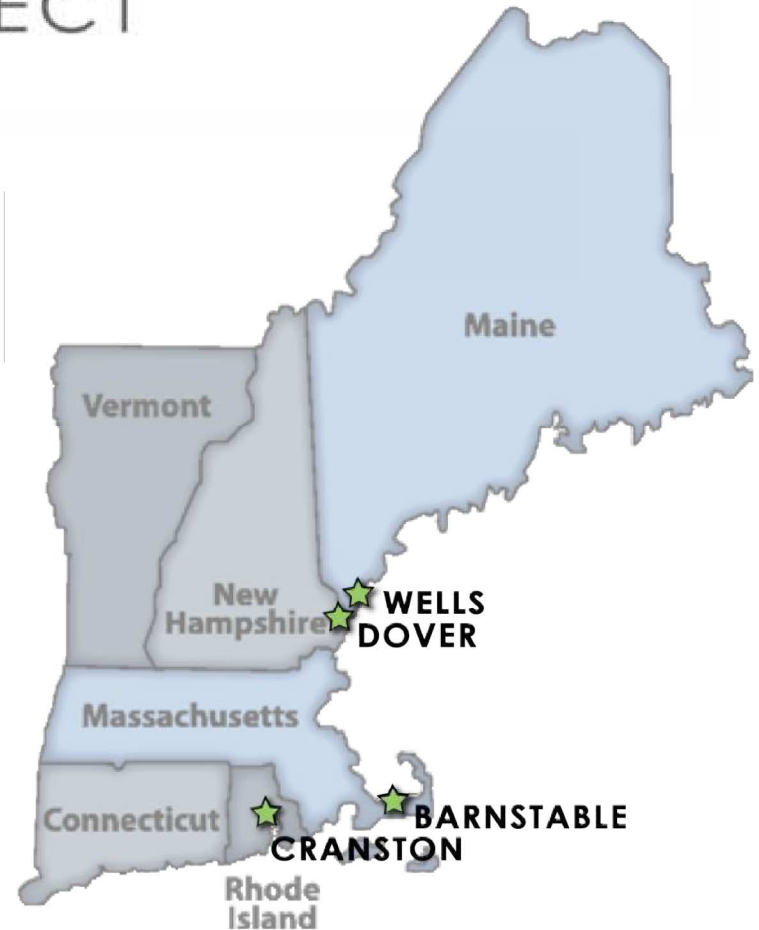
New England  
**Climate Adaptation** PROJECT

# New England **Climate Adaptation** PROJECT

**MIT** Science Impact Collaborative  
*Harmonizing Science, Politics and Policy*



NATIONAL  
ESTUARINE  
RESEARCH  
RESERVE  
SYSTEM



FUNDED BY THE NERRS SCIENCE  
COLLABORATIVE

# NEW ENGLAND CLIMATE ADAPTATION PROJECT

Can science-based role-play simulations help build public readiness to adapt to climate change?



# NEW ENGLAND CLIMATE ADAPTATION PROJECT

- Local Summary Risk Assessment
- Stakeholder Assessment
- Public opinion poll before our workshops
- Tailored, science-based role-play simulation
- 7-8 role-play workshops
  - Engaged 110-170 participants per community
- Upcoming:
  - Workshops and/or meetings with stakeholders in each town (late May 2014)
  - Second public opinion poll (early June 2014)

# SUMMARY RISK ASSESSMENTS

- Local climate projections produced for each town
- “Downscaled” to local level using local meteorological data
  - Dover assessment used meteorological station in Durham, NH
  - Sea level rise projections based on data from Portsmouth, NH
- Technical questions?
  - More information in the Summary Risk Assessment
  - Ask Paul Kirshen or Cameron Wake

## New England Climate Adaptation PROJECT



### Summary Climate Change Risk Assessment Dover, New Hampshire March 2014

**PRODUCED BY:**  
Maine Forests Institute of Technology Science Impact Collaborative  
Construction Building Institute  
National Hurricane Research Reserve System

# THE CLIMATE PROJECTIONS “MATRIX”

Projections produced for:

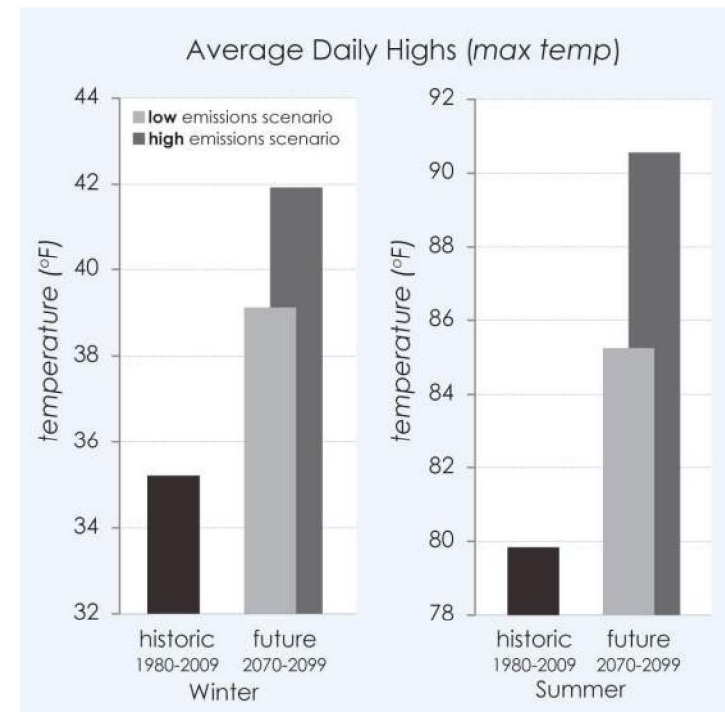
- 3 time frames
  - Short term (2010 - 2039)
  - Medium term (2040 - 2069)
  - Long term (2070 - 2099)
- “Best case” and “worse case” climate change scenarios
  - High emissions scenario = “worse case”
  - Low emissions scenario = “best case”
- A range of climate “indicators”
  - Such as: average annual maximum temperature, extreme precipitation events, and sea level rise

## Climate Change Projections for Dover, NH (Change from Historical)

Indicators	Historical 1980-2009	Change from historical (+ or -)					
		Short Term 2010-2039		Medium Term 2040-2069		Long Term 2070-2099	
		Low Emissions	High Emissions	Low Emissions	High Emissions	Low Emissions	High Emissions
<b>Temperature (F)</b>							
Average annual minimum temperature	35.7	2.4	2.5	3.6	5.6	4.5	8.9
Average winter minimum temperature	15.6	3.0	3.1	4.3	6.2	5.3	9.9
Average summer minimum temperature	55.7	2.4	2.7	3.8	5.8	4.7	9.0
Average annual maximum temperature	58.0	2.3	2.3	3.7	5.6	4.6	9.0
Average winter maximum temperature	35.2	2.2	2.0	3.2	4.1	3.9	6.7
Average summer maximum temperature	79.8	2.5	2.2	4.4	6.8	5.4	10.7
<b>Temperature Extreme (days per year)</b>							
Colder than 32 °F	155	-11	-12	-19	-34	-23	-53
Hotter than 90 °F	10	6	7	15	36	21	65
<b>Precipitation (in)</b>							
Annual average	43.6	1.9	2.8	4.1	5.0	5.2	7.2
Winter average	8.4	1.4	1.8	1.8	2.1	2.7	3.7
Summer average	11.4	-0.5	-1.1	-0.2	-0.5	-0.8	-0.4
<b>Extreme Precipitation (events per year)</b>							
1" in 24 hrs	10.1	1.0	1.9	2.6	2.9	3.0	4.9
2" in 48 hours	4.4	1.5	1.6	2.6	2.6	3.3	4.6
<b>Extreme Precipitation (events per decade)</b>							
4" in 48 hours	8.0	-1.4	-3.4	-0.1	1.7	1.4	3.0
<b>Sea Level Rise (Increase relative to the year 2000 in feet)</b>							
		0.5	0.8	1.0	1.7	2.0	4.7

# IN OTHER “WORDS” ...

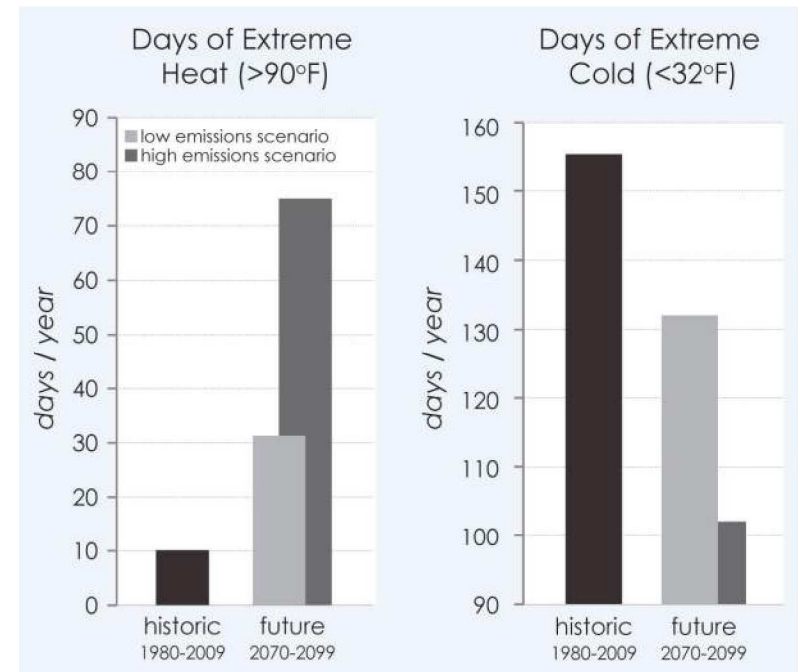
- Higher average temperatures





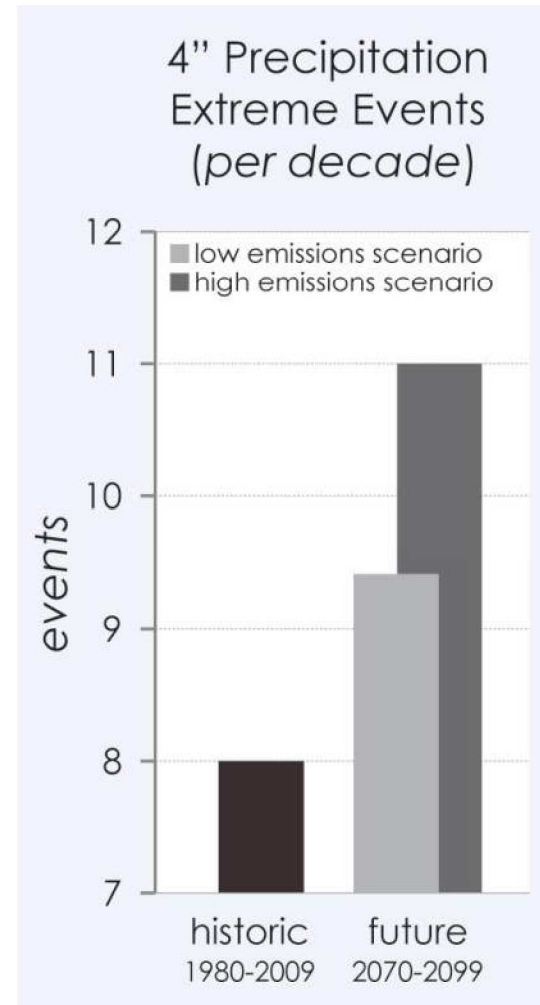
# IN OTHER “WORDS” ...

- Higher average temperatures
- More extreme heat events (over 90 degrees), fewer extreme cold events (below 32 degrees)



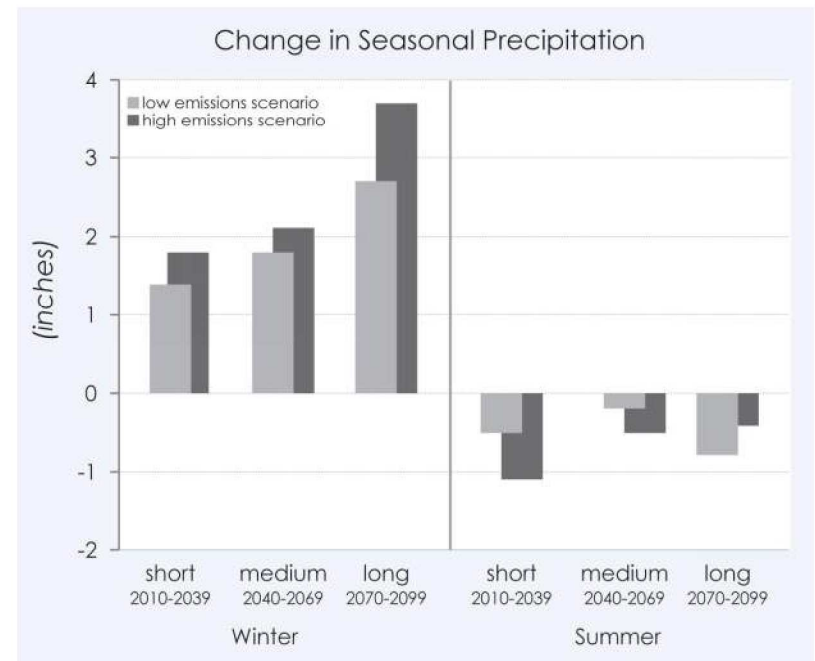
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- More extreme precipitation events (e.g., 4” in 48 hours)
- Wetter winters, drier summers
- Significant sea level rise, potentially up to 5 feet by the end of the century



# WHAT DOES THIS MEAN?

- Risk of flooding ↑
  - Flooding is already a major issue
- Risk of coastal erosion, storm surge, and inundation ↑
- Risk to groundwater supplies ↑
- Risk of heat related impacts ↑
  - Health risks
  - Drought and wildfire
- Threats to ecosystems and communities ↑



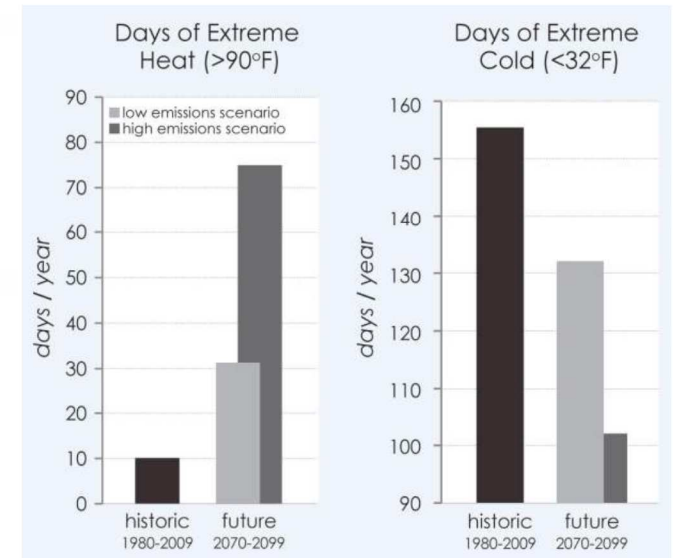
# DIFFERENT COMMUNITIES DIFFERENT IMPACTS



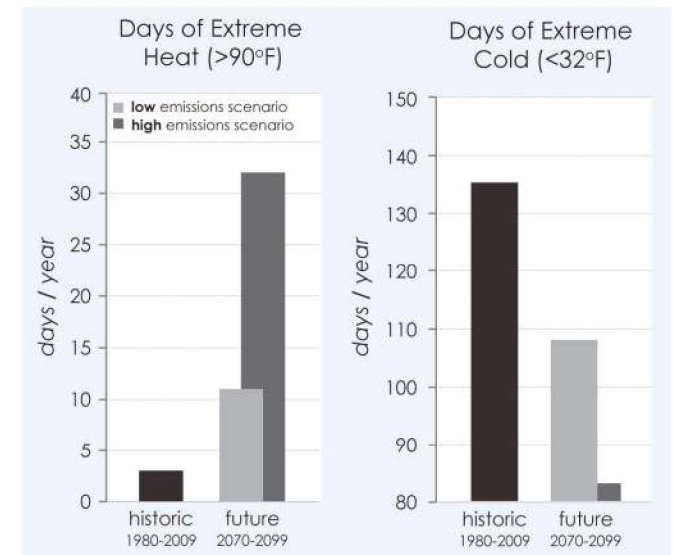
Dover Sea Level Rise



Wells Sea Level Rise



Dover Extreme Temperature



Cranston Extreme Temperature

# “THE FUTURE AIN’T WHAT IT USED TO BE”

- Our everyday decision-making TODAY needs to account for a changing climate
  - Choices we make today can make us more vulnerable...or, more resilient
- We cannot know exactly what the future will bring
  - But we can make “no regrets” decisions that make sense regardless of the extent of future climate change
- Climate change impacts will not be the same everywhere
  - Local impacts require local solutions
- Adapting to and managing climate change risks will require collaboration and coordination
  - Many sectors
  - Many levels of government + neighborhoods + individuals

# QUESTIONS? WANT TO LEARN MORE?

- Learn more
  - NECAP website: <http://necap.mit.edu>
  - Consensus Building Institute website: [www.cbbuilding.org](http://www.cbbuilding.org)
  - Read the Dover Summary Risk Assessment (available on the NECAP website): <http://necap.scripts.mit.edu/necap/risk-assessments/>
- Contact us
  - Contact Danya Rumore, NECAP Project Manager, Associate at CBI and PhD Candidate at MIT: [drumore@mit.edu](mailto:drumore@mit.edu)
  - Contact Carri Hulet, Senior Associate at CBI: [chulet@cbbuilding.org](mailto:chulet@cbbuilding.org)