

# Enhancing community readiness to adapt: Strategies for education, engagement, and collective risk management



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# Focus of my talk

- How can we help our communities understand the risks they face?
- How can we create community buy-in for adaptation and resilience-building measures?
- What education and engagement strategies, tools, and approaches can help?

# New England Climate Adaptation PROJECT



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



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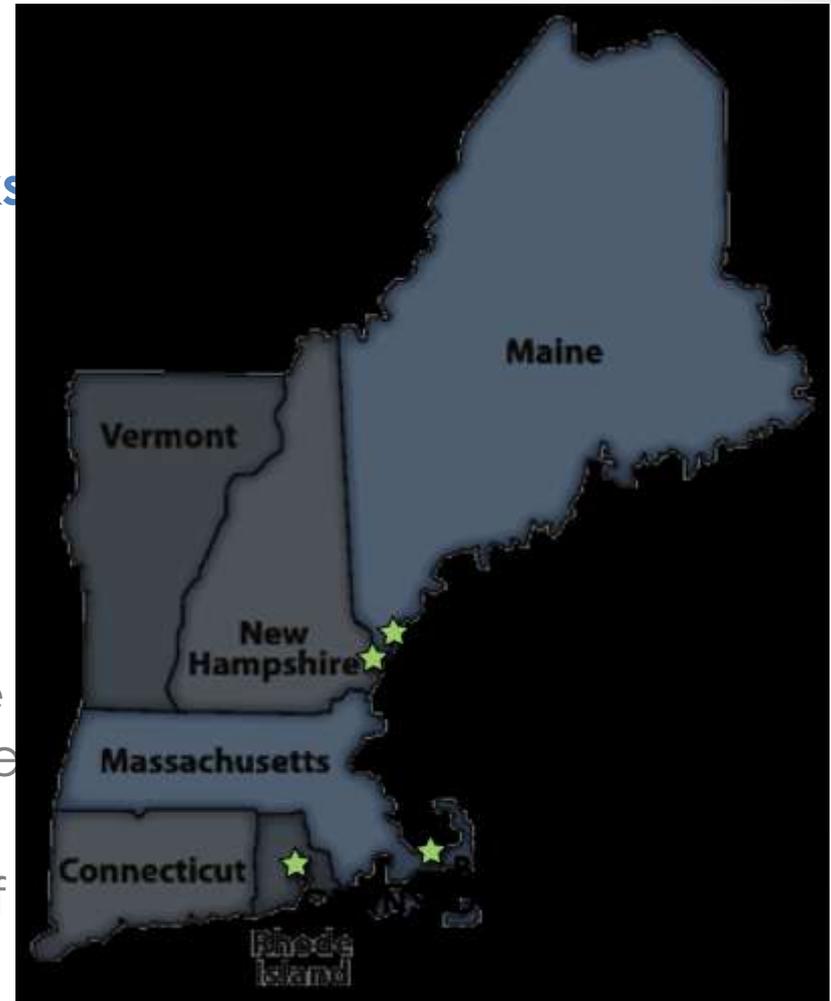
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# New England

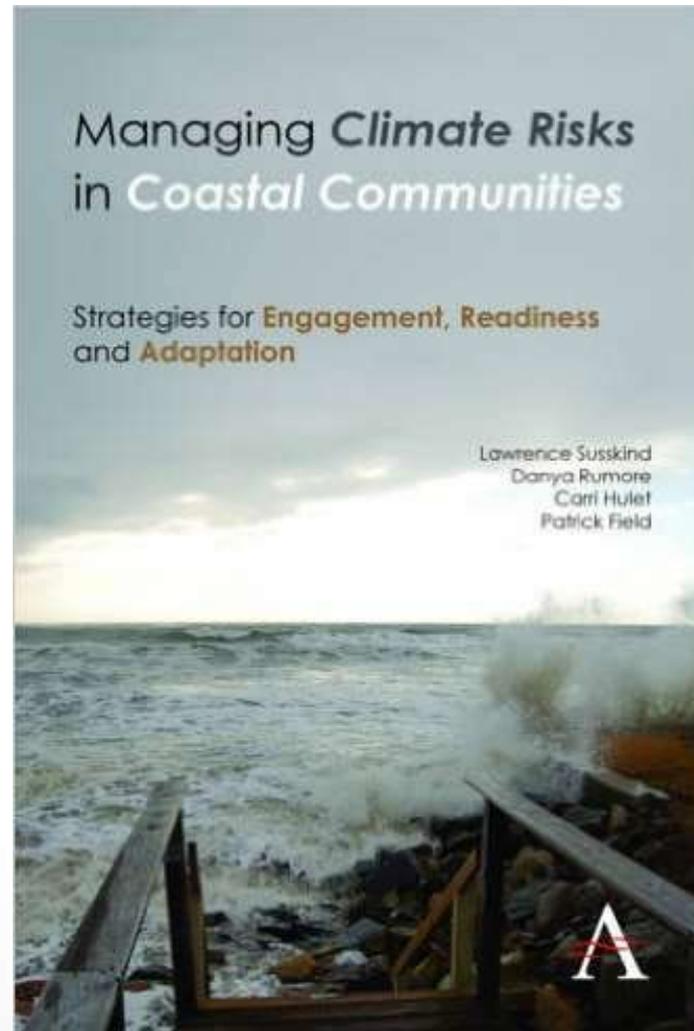
## Climate Adaptation PROJECT

### Project Goals:

- Assess local climate change **risks**
- Identify key **barriers to** and **opportunities** for adaptation
- Test the use of role-play simulations as a tool for:
  - **Educating** and **engaging** the public about climate change adaptation
  - **Enhancing the “readiness”** of communities to collectively manage climate change risk



# New England **Climate Adaptation** PROJECT



# Adaptation is challenging...

## Technical challenges

- Assessing risk – climate change projections and uncertainty
- Identifying adaptation and risk management strategies
- Funding action
- “Adaptively adapting” – flexible and incremental planning
- Coordinating action across scales and stakeholders

# Socio-political challenges greatly complicate things

- Political
  - Politically” undiscussable”
  - Tradeoffs have to be made among limited resources and different interests
  - Lack of political will and/or public support
- Social
  - Climate change seen as an “environmental issue”
  - Adaptation not “socially normal”- we need to create new “collective patterns of thinking”
- Psycho-cognitive
  - Differences in risk perception and risk tolerance
  - Finite “pool of worry”
  - Lack of sense of efficacy in managing risks leads to inaction

# What did we find in NECAP?

- Stakeholder assessments
  - Interviews with about 20 stakeholders in each community, from public officials to business owners
- Public opinion polls
  - Randomized phone poll with 100 respondents in each town/city

# NECAP social landscape key findings

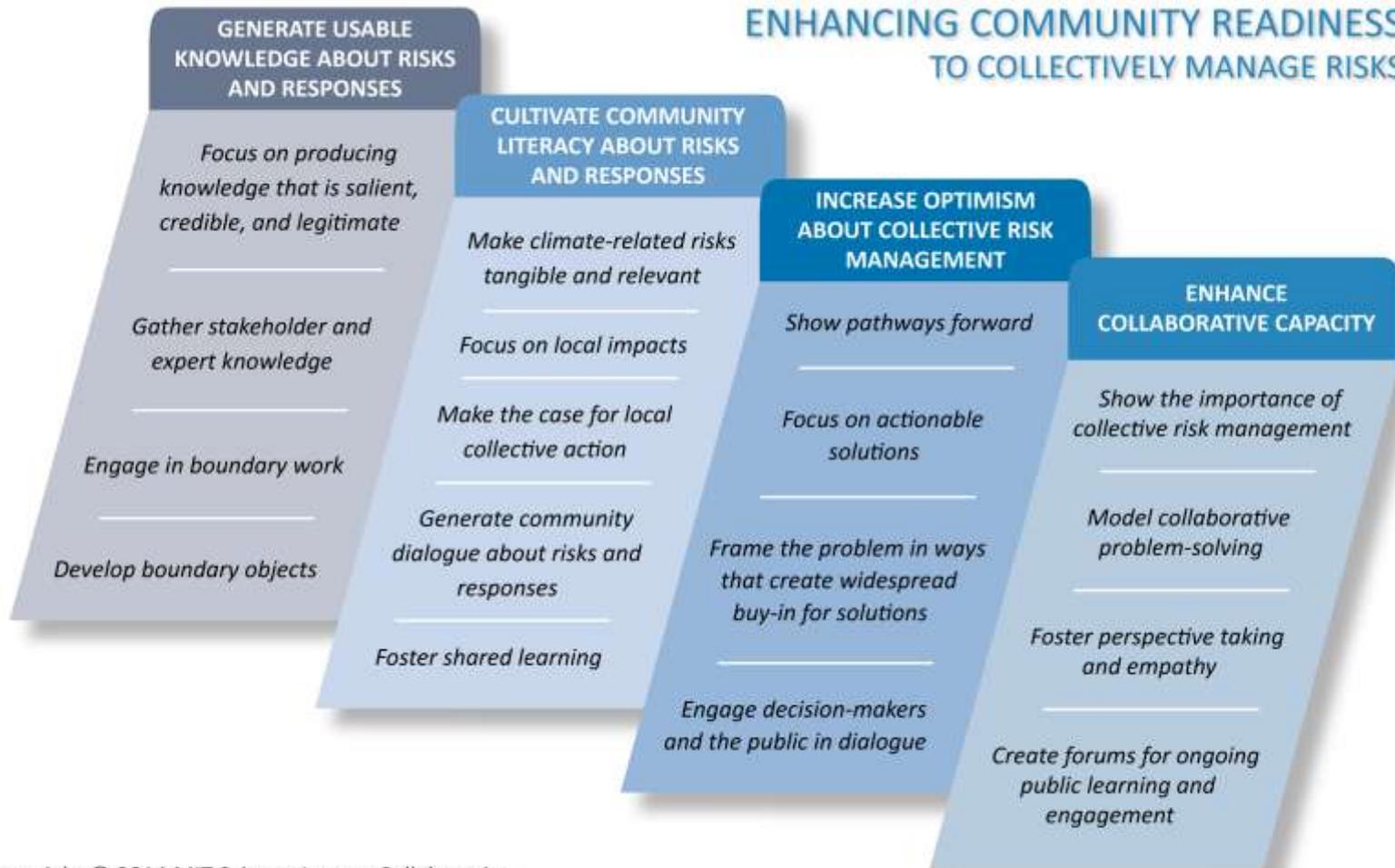
- The **conventional wisdom** is that “I care, but other people in my community aren’t concerned”
- Actually, the **public is pretty concerned** about climate change risks
  - However, many are in the “somewhat” category
  - No *shared* sense of importance, urgency, and priority for adaptation
- Adaptation is **not seen primarily as a local municipal responsibility**
  - People are not looking to local government as primarily responsible for adaptation
  - Tendency to think of adaptation as something individuals or the federal government should be responsible for

# NECAP social landscape key findings

- There is a striking “**confidence gap**”
  - The majority of people think their town should take action, but are not confident in the prospects of local action
  - This is a big problem, since sense of collective efficacy is tied to likelihood to act
- People do not see **pathways forward**
  - The issue is seen as too big or overwhelming to address
  - People are not thinking about how everyday planning can increase their town’s resilience (or vulnerability)
- Importance of **stakeholder engagement**
  - People value stakeholder engagement and want to have a say in what their town does to adapt

# So...how do we enhance readiness to adapt?

## ENHANCING COMMUNITY READINESS TO COLLECTIVELY MANAGE RISKS



# Generate **usable** knowledge about risks and responses

- To be “usable,” knowledge has to be seen as relevant, trusted, and valid by knowledge users
  - The “loading dock” model of science delivery tends to lead to science being used as weapon, not a tool
  - Need to engage knowledge users with knowledge producers, integrate “expert” and “local” knowledge
- Downscaled “local” climate projections are key!
  - “This is what’s going to happen in *my* town?!”
- Get help from “boundary organizations”
  - Facilitating between knowledge users and knowledge producers is a skill
  - NERRS CTP is a great “boundary organization” – also CBI and MIT SIC
- Develop and use “boundary objects”
  - Tools and objects for fostering shared understanding
  - Can be anything from maps to participatory models

# Cultivate community literacy about risks and responses

- “Bring climate change home” for people
  - Focus on local impacts
  - Make local risks and impacts “tangible” for people
- Help people understand that adaptation requires local collective action
  - Convey the collective nature of risks
  - Show that local government has a key role to play
  - Communicate that integrating risk management into everyday planning is *really* important
- Foster dialogue and shared learning about risks *and responses*
  - Remember – this is not just a knowledge deficit problem!!
  - Social norms matter – we need to create a new “collective pattern of thinking”

# Bringing impacts home



The Tideline Project

Increasing concern about risks isn't enough

We also need to “bring home” effective adaptation/risk management responses

# Increase optimism about the prospects of effective action

- Show “pathways forward” and focus on actionable solutions
  - Convey that a key first step is to incorporate climate change projections into everyday decisions
  - Focus on incorporating adaptation into things that already need to be done
  - When communicating risks, also communicate meaningful strategies for addressing them
- Frame the problem in ways that generate widespread buy-in for solutions
  - Convey this is not just an environmental issue - this is an economic, community wellness, public health issue!!
  - When communicating risks, be careful about how you frame them
- Engage decision-makers and the public in dialogue *together*
  - Help create a shared sense of responsibility and commitment to action
  - Focus on what can **we** do?

# Enhance collaborative capacity

- Show the importance of collective risk management
  - Convey we're all in this together and we have to act together
  - Help people appreciate that individual actions (e.g., armoring) could be mal-adaptive
- Model collaborative decision-making
  - Introduce people to consensus building and other approaches for working together to make decisions and coordinate action
- Foster perspective-taking and empathy
  - Help people appreciate others' perspectives and interests
  - Help people appreciate that decision-makers have a tough task ahead – how can we help them?
- Create forums for ongoing learning and engagement
  - Adaptation is not “once and done” – people need to learn and adaptively respond together

# Tools from NECAP

- **Summary risk assessments**

- Local climate projections –
  - Used different emissions scenarios and three different time frames to help convey range of uncertainty
- Conversations with local stakeholders to help inform assessment

- **Stakeholder assessments**

- One on one dialogues with key stakeholders about risks and responses
  - Included reflecting on climate projections and adaptation options
- Diagnosis:
  - What is the conventional wisdom in this community?
  - What are concerns and interests?
  - What interventions make sense?

- **Public opinion polls**

- Diagnosis:
  - What does the general public in this community think?
  - What interventions make sense?

- **Role-play simulations**

- Experiential exercises to engage community members in learning with and from each other
- A conversation starter and potentially a “focusing event”

# The climate projections matrix

Climate Change Impact Projections: Barnstable, MA  
(change from historical)

Indicators	Change from historical (+ or -)						
	Historical	Short term (2010-2039)		Medium Term (2040-2069)		Long term (2070-2099)	
	1980-2009	Low Emissions	High Emissions	Low Emissions	High Emissions	Low Emissions	High Emissions
<b>Temperature Anomaly (F)</b>							
average annual minimum temperature	43.0	1.2	1.1	2.1	3.6	2.8	6.1
average winter minimum temperature	24.5	1.5	1.4	2.6	3.6	3.1	6.3
average summer minimum temperature	61.4	1.2	1.2	2.3	3.8	2.8	6.2
average annual maximum temperature	59.2	1.4	1.3	2.4	3.8	2.9	6.4
average winter maximum temperature	40.4	1.1	1.0	2.0	2.6	2.2	4.3
average summer maximum temperature	77.9	1.6	1.7	2.9	4.8	3.6	7.7
<b>Temperature Extreme (days per year)</b>							
colder than 32°F	103	-11	-10	-16	-25	-20	-41
hotter than 90°F	2	2	2	5	9	6	24
<b>Precipitation (in)</b>							
annual average	47.7	-0.1	0.1	0.7	0.8	2.8	2.7
winter average	11.6	0.7	1.1	1.4	1.1	1.7	2.2
summer average	11.2	0.0	-1.0	-0.3	-0.7	0.2	-0.5
<b>Extreme Precipitation (events per year)</b>							
1 inch in 24 hours	12.9	0.7	0.9	1.3	2.4	2.4	2.8
2 inches in 48 hours	5.6	1.3	1.0	1.9	2.9	2.9	3.9
<b>Extreme Precipitation (events per decade)</b>							
4 inches in 48 hours	1.8	1.2	0.0	1.3	0.9	0.8	2.3
<b>Sea level rise (from 2000 levels in feet)</b>							
		0.6	0.9	1.1	1.8	2.2	4.9

The projections in this table are based on meteorological information from five stations around Barnstable, located in East Wareham, Edgartown, Hyannis, New Bedford, and Rochester. Sea level rise is projected using data from Barnstable.

# NECAP role-play simulations

- **Tailored** simulations based on Risk Assessments and Stakeholder Assessments
- Reflected **local political dynamics** and key **local risks** – “a town a lot like your own”
- Tables of seven players, each participant given a character that is **different than their everyday role**
- One hour to **reach consensus** about adaptation policy options to recommend
- Then, **debriefing dialogue** to tie experience to reality



# Role-play simulation findings

- **Increased concern** about local climate change risks and **support for local action**
- **Increased confidence** in local adaptation action
- **Enhanced** understanding of **other perspectives** and appreciation for the need for **collective action** and **stakeholder engagement**
- **Enriched participants' understanding** of climate change risks and adaptation, and introduced **pathways forward** and actionable solutions

# Other tools and approaches

## Communication

- **Art:** Tideline Project, King Tide photo project
- **Careful messaging:** communicate risks **and** responses, focus on community (not just environmental) impacts

## Engagement

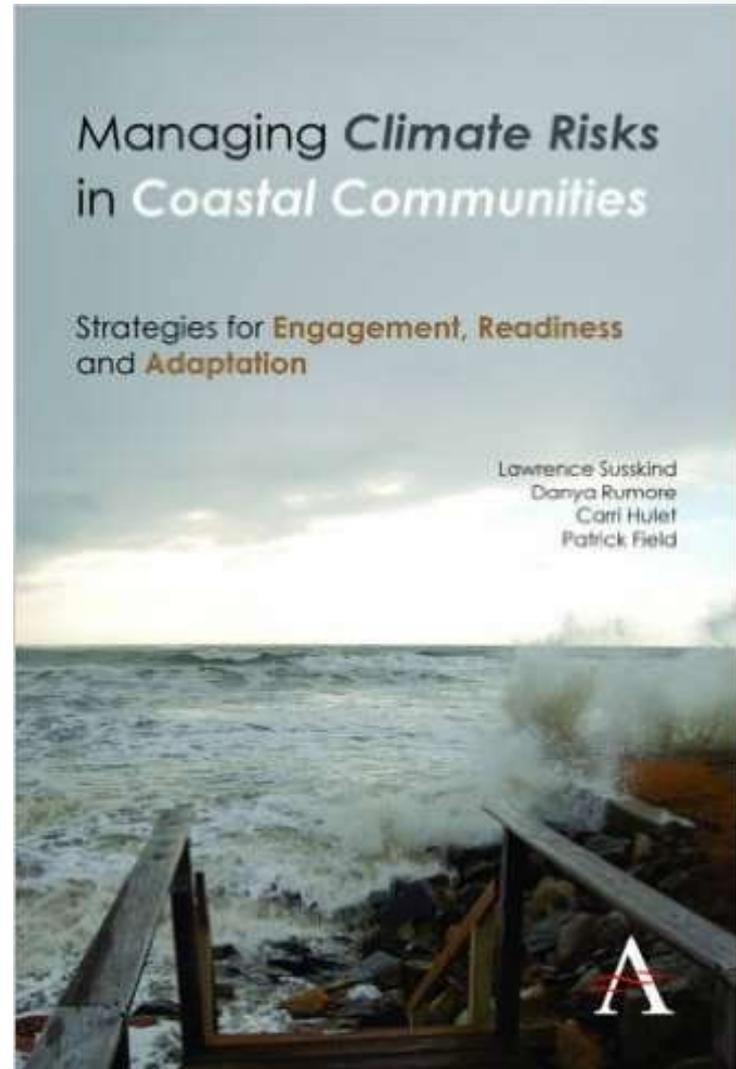
- **Risk dialogues:** forums for people to inform risk assessments
- **Field trips**
- **Listening/dialogue forums**
- **Face-to-face experiential learning exercises**, such as role-plays
- **Participatory mapping exercises**
  - \*\*Focus on engaging diverse stakeholders in learning together and from one another\*\*

## Collective Risk Management

- **Joint fact finding**
- **Participatory scenario planning**
- **Consensus building**

# For more information

Susskind, L., D. Rumore, C. Hulet, and P. Field (2015)  
*Managing Climate Risks in Coastal Communities: Strategies for Engagement, Readiness, and Adaptation*  
(Anthem Press)



# For more information

## New England **Climate Adaptation** PROJECT

ABOUT

COMMUNITIES

PEOPLE

**RESEARCH FINDINGS**

RESOURCES

BLOG

CONTACT

BETTER SAFE THAN SORRY

CASE STUDIES

PUBLIC POLLS

RISK ASSESSMENTS

STAKEHOLDER ASSESSMENTS

### Project Overview



The Massachusetts Institute of Technology Science Impact Collaborative worked with the National Estuarine Research Reserve System (NERRS) and the Consensus Building Institute to test an innovative way to help coastal communities understand and prepare for the potential impacts of climate change. With a grant from the NERRS Science Collaborative, the team engaged four at-risk New England towns in testing the use of role-play simulations as a means to educate the public about climate change threats and to help communities explore ways of decreasing their vulnerability and enhancing their resilience to climate change impacts.

[necap.mit.edu](http://necap.mit.edu)

[localclimatechange.mit.edu](http://localclimatechange.mit.edu)

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# How significant do you think climate change should/will be in your town's planning and decision making over the next ten years?

