

# The Social Resilience Project:

## Connecting Sectors to Increase Regional Community Resilience in Southern Midcoast Maine



Photo by: Heather Perr

# Project Team



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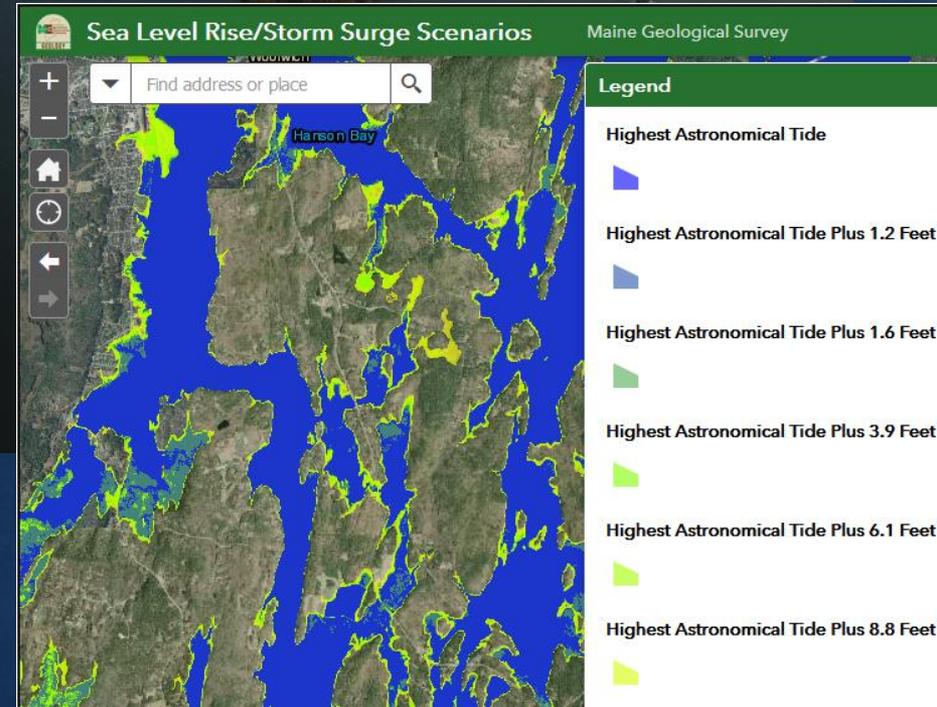
# Record rainstorm causes 'life threatening' flooding, road closures in southern Maine

Flood waters had receded in Portland by Thursday morning after more than 6 inches of rain fell Wednesday night.

BY DENNIS HOEY STAFF WRITER  
dhoey@pressherald.com | @DennisHoey | 207-791-6365



Source: Kennebec Journal  
A giant hole appeared after heavy rains Wednesday night at Rufus O'Leary Lumber on Commercial Street in Portland. Yoon S. Byun/Staff Photographer



# Place Characteristics

# Community Characteristics

## Community Examples

- Aging housing stock
- Isolation of residents
- Limited access to emergency services
- Limited road infrastructure
- Reliance on natural resource economies
- Service center towns provide resources like hospitals, groceries, fuel, schools, and employment



Arrowsic  
Photo by: Bob Trabona

## Population Examples

- Aging populations  
(Maine median age = 44.6; US median age = 38)  
(46% of residents 65+ older in Maine live alone)

BDN STATE

24°F Overcast  
January 06, 2020

Latest News | Immigration | Bangor Metro | Yamas Reopens | Today's Paper | Sharing

### Maine is still the oldest state in the nation

Erma Brickman (left) and 92-year-old Joan Logue look through a photo album at Logue's home in

**MOST POPULAR**

- He fled terrorists in Somalia and moved to Maine. This month, he'll become a US citizen.
- BANGOR METRO**  
These Maine trails will take you to historic rock monuments hidden in the woods
- 4 men face federal trespassing charges for camping, building fire on island wildlife refuge

**POLL QUESTION**  
2 Maine health systems will allow

### Bangor Daily News

Maine's small-town fire departments struggle to find volunteers, money

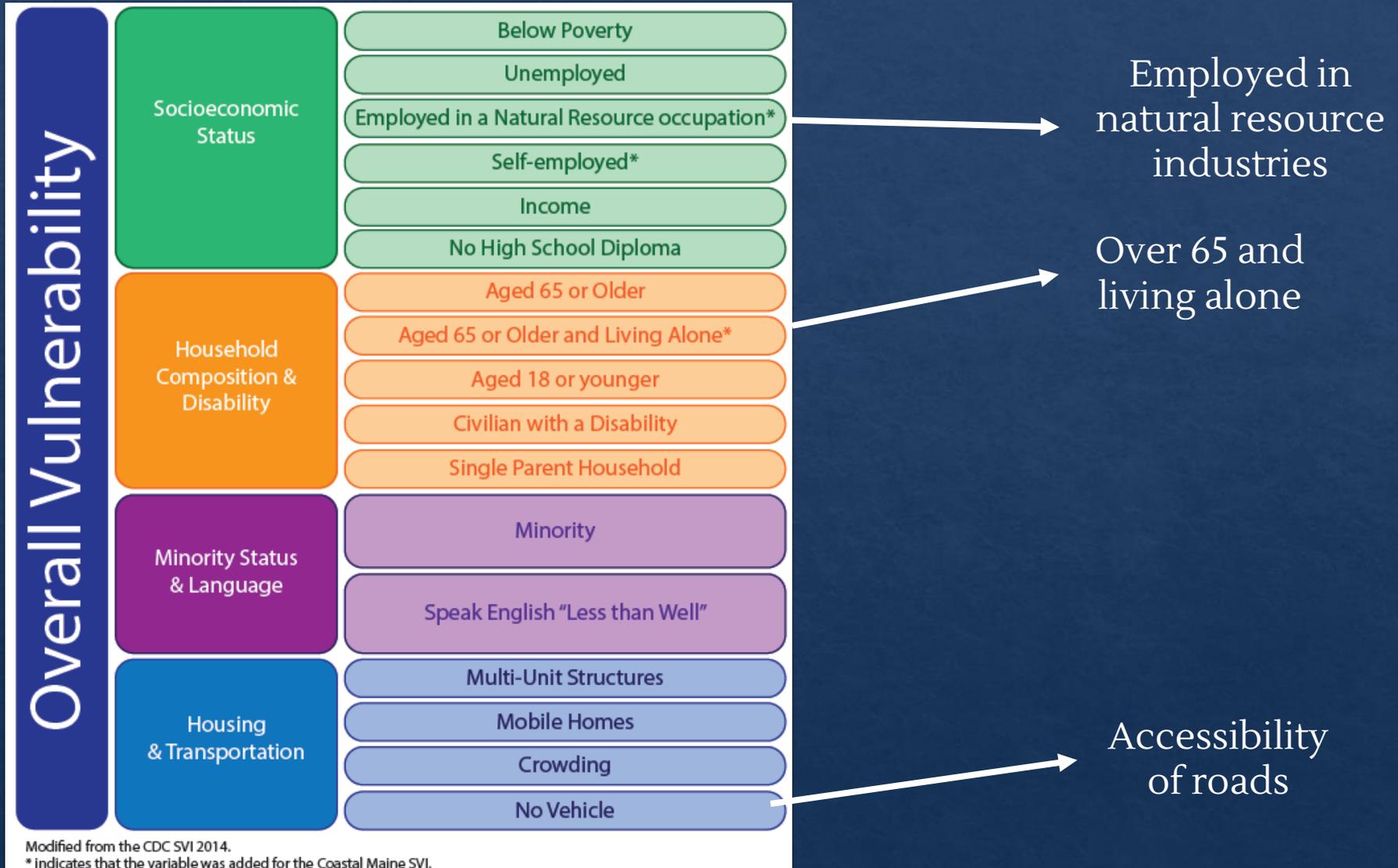


(Horney et al 2016 Engaging the public in planning for disaster recovery)

10/20/2015

Troy R. Banner

# Maine Social Vulnerability Index



Source: Flanagan et al 2011, CDC Social Vulnerability Index

Johnson, E., Bell, J., Coker, D., Hertz, E., LeBarge, N., & Blake, G. (2018). A lifeline and social vulnerability analysis of sea level rise impacts on rural coastal communities. *Shore and Beach*, 86(4), 38-44.

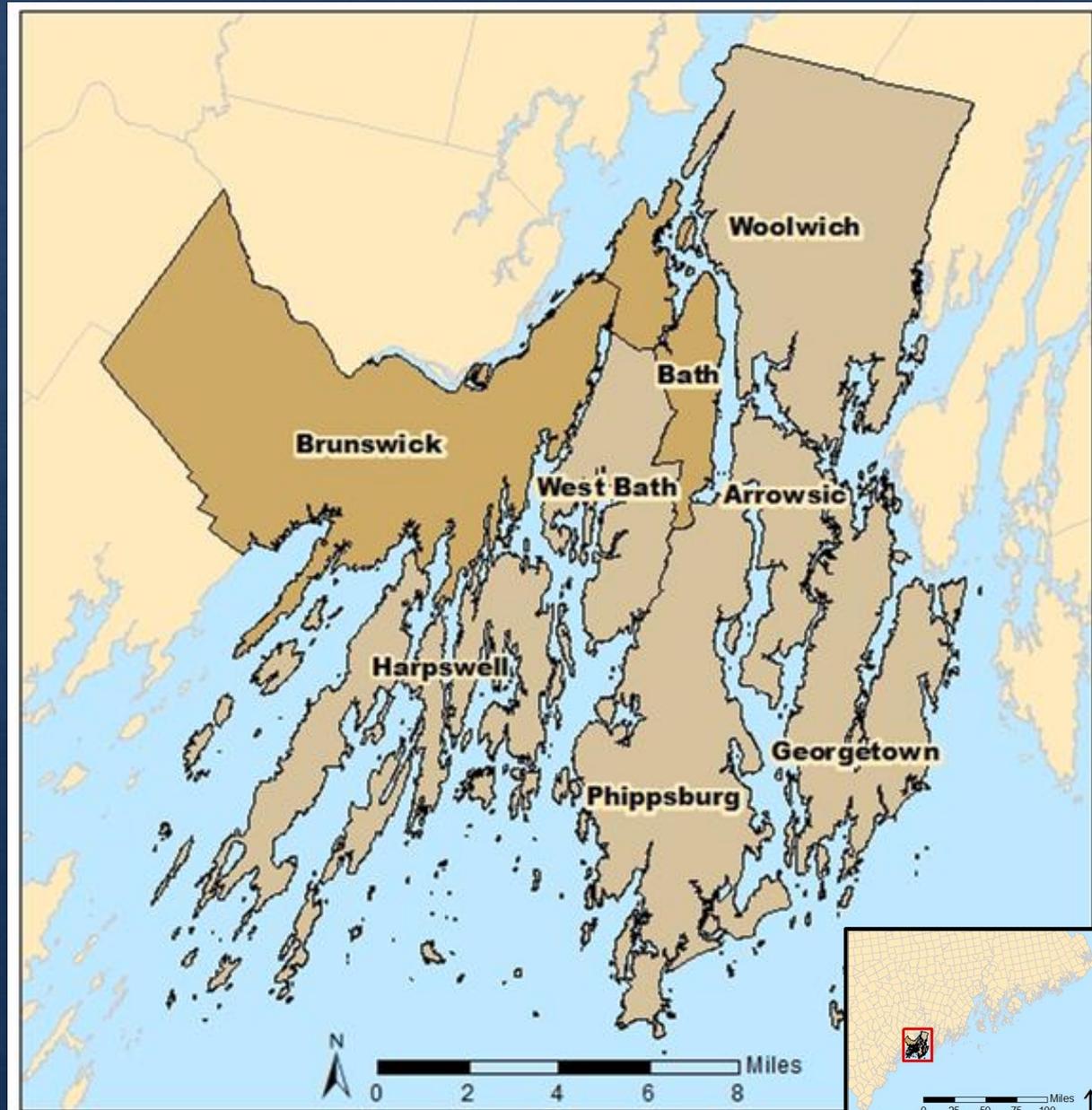
## Service Center Communities

- Bath
- Brunswick

## Rural Island & Peninsula Communities

- Arrowsic
- Georgetown
- Harpswell
- Phippsburg
- West Bath
- Woolwich

# Project Area



- Peninsular towns with limited road access
- 2 emergency management agencies, 8 communities, 2 planning districts

# Coastal Stakeholder Interviews

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Interviewees ranged from: town planner, conservation commission member, realtor, Department of Homeland Security employee, and municipal emergency management director

## Themes:

- 1) a lack of regional discussion about addressing climate change impact solution
- 2) an opportunity to regionally share best practices from individual community projects addressing climate adaptation solutions
- 3) the different challenges that climate change presents for island, peninsular, and rural communities versus semi-urban communities
- 4) barriers to climate adaptation implementation at the municipal level include staff turnover, staff capacity, and lack of funding.

To paraphrase a Harpswell Conservation Commission member:

“island and peninsular communities rely on inland towns to maintain their roads; if an inland town’s culvert blows, everyone will not be getting off the peninsula.”

# Resilience Plans, Data, and Tools Around

## State

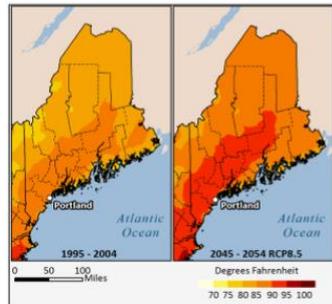
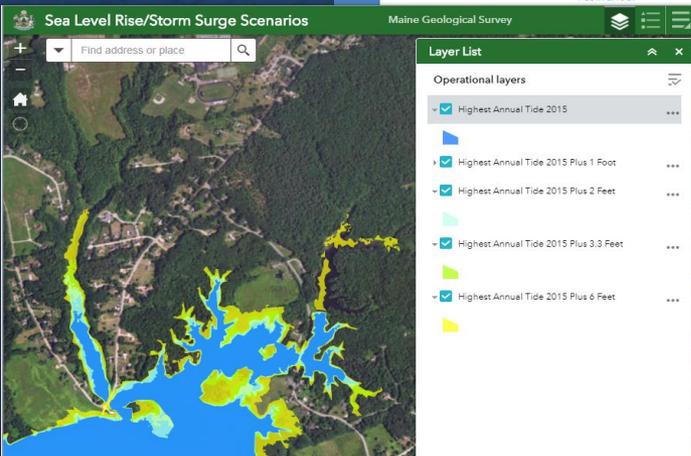


Figure 7 Projected Average Annual Maximum Temperature

## Maine Flood Resilience Checklist



A self-assessment tool for Maine's coastal communities to evaluate vulnerability to flood hazards and increase resilience.



Version 1, July 2017

## Region

### Sagadahoc Region, Maine Climate Change Adaptation Plan



Manomet Center for Conservation Sciences  
Eric Walberg, AICP, William VanDoren, Jackie Sartoris

Sagadahoc County Hazard Mitigation Plan - 2016 Update

Click Section Links to Review Plan:



SECTION 1 - Intro - 2016

SECTION 2 - Prerequisites\_Adoptions - 2016

SECTION 3 - Planning - 2016

SECTION 4 - Risk (revised) - 2016

SECTION 5 - Strategy (revised) - 2016

SECTION 6 - Maintenance - Sept16

Municipality Resolution Adoption Page - 2016

## CASCO BAY CLIMATE CHANGE VULNERABILITY REPORT



Prepared by:



## Climate Change Adaptation Report: Georgetown, Maine



## Preparing for Coastal Flooding in Harpswell: A Plan for Basin Point Road and Its Wetlands



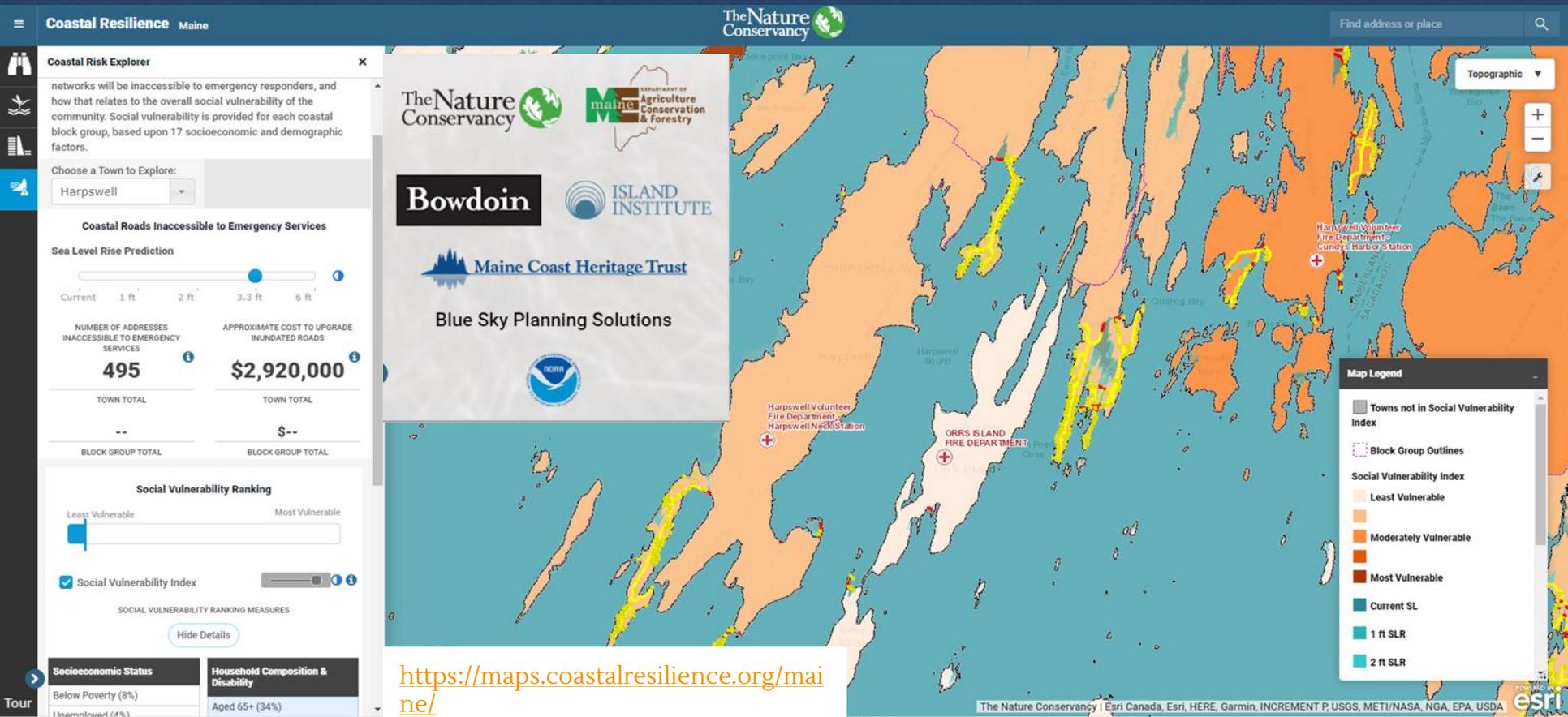
## Local



Georgetown Conservation Commission 2015

# Maine Coastal Risk Explorer

a customized social vulnerability index for Maine coastal communities and an analysis of impacts of sea level rise on critical road networks



# Pilot Meetings

- How do you consider social vulnerability, and what is your role in responding to an event?
- What tools do you use?
- What are barriers/opportunities/gaps/needs for coordination?



# Emergency Management

## Listening Session Participants

- Maine Emergency Management Agency
- Sagadahoc County Emergency Management Agency
- Harpswell Emergency Manager/Fire Administrator
- Red Cross Disaster Management
- Georgetown Emergency Managers
- Harpswell Conservation Commission

What role do they play?	What resources do they use?	What are the challenges or opportunities?
<ul style="list-style-type: none"><li>• Response and recovery</li><li>• Short planning horizons</li><li>• Not community education</li><li>• Emergency managers are not having conversations about coastal resilience</li></ul>	<ul style="list-style-type: none"><li>• Hurrevac</li><li>• NOAA tide predictions</li><li>• NWS weather data</li><li>• Town emergency managers rely on county emergency managers and state emergency management agency</li><li>• County emergency management plans</li><li>• Had little to no familiarity with any of the other resources we shared</li></ul>	<ul style="list-style-type: none"><li>• Political boundaries (counties, towns) make for geographic planning gaps</li><li>• Lack of connections between EMAs and other municipal groups, planners</li><li>• Silos (different missions)-- EM: respond &amp; recover; local planners, municipalities, organizations: plan &amp; mitigate</li></ul>

# Social Service

## Listening Session Participants

- American Red Cross
- AARP
- People's Plus
- Catholic Charities SEARCH program
- Good Shepherd Food Bank
- Harpswell Aging at Home
- Midcoast Public Health
- Richmond Senior Center

What role do they play?	What resources do they use?	What are the challenges or opportunities?
<ul style="list-style-type: none"><li>• Food security</li><li>• Support older adults<ul style="list-style-type: none"><li>• Transportation</li><li>• Check-ins</li><li>• Aging-in-place</li></ul></li><li>• Provide shelter during emergencies</li><li>• Provide phone charging and water during emergencies</li></ul>	<ul style="list-style-type: none"><li>• Volunteers</li><li>• Each other, local networks</li><li>• 211</li></ul>	<ul style="list-style-type: none"><li>• Most vulnerable cannot access resources</li><li>• Need more scientific data on when storms will be hitting</li><li>• During a storm event:<ul style="list-style-type: none"><li>• Identifying vulnerable people</li><li>• Communication breakdowns when power &amp; phones are out</li><li>• Mainers want to stay in place and not ask for help</li></ul></li></ul>

# Conservation

## Listening Session Participants

- Phippsburg Conservation Commission
- Georgetown Conservation Commission
- Harpswell Conservation Commission
- Arrowsic Conservation Commission
- Bath City Councilor/Forestry Committee
- Maine Coast Heritage Trust
- Brunswick Topsham Land Trust
- Brunswick Town Planner

What role do they play?	What resources do they use?	What are the challenges or opportunities?
<ul style="list-style-type: none"><li>• Community outreach and education through presentation and publications about sea level rise threats, marsh migration</li><li>• Community science to monitor impacts and coastal flooding</li><li>• Focus on adaptation – green infrastructure and improving culverts</li><li>• Support local food systems</li><li>• Carbon capture</li><li>• Longer planning horizons</li></ul>	<ul style="list-style-type: none"><li>• Sea level rise and marsh migration mapping</li><li>• Flood resilience checklist</li><li>• Volunteers</li><li>• Other conservation commissions or environmental nonprofits</li><li>• Printed resource guides</li></ul>	<ul style="list-style-type: none"><li>• Lack of regional support</li><li>• Volunteers are busy and wear a lot of hats</li><li>• Knowledge gaps</li><li>• Funding needs</li></ul>

# Identifying Opportunities: Increase Social Infrastructure and Social Resilience

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- ◆ **Social Resilience** - the ability of a community to, “deal with stressors and efficiently resume the rhythms of daily life through cooperation following shocks” (Aldrich and Meyer, 2015).
- ◆ **Social Infrastructure** - the degree to which organizations partner and collaborate with one another across sectors to make the best use of both individual skills and organizational strengths. People and their skills and networks are part of critical social infrastructure.
- ◆ Research has found that rural communities are better able to absorb and recover from challenges/hazards when there are community organizations in place and strong networks between them (Norris et al. 2008).
- ◆ Feelings of mutual trust and dependence have also been found to support disaster preparedness, collective response and recovery, and adaptation and collective decision making for risk and recovery (Aldrich and Meyer, 2015).

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Building social infrastructure involves the building and maintaining of partnerships among emergency management, community sectors, and organizations; and empowering local action through increased social capital and civic activity.

# Using a Scenario Planning or Tabletop Exercise

- ◆ Identified during 2019 listening sessions by our project partner at Sagadahoc Emergency Management Agency
- ◆ A practical, visual means to engage representatives from the various sectors
- ◆ Studies indicate that scenario planning exercises are an effective means of convening stakeholders towards identification of information needs and enhanced collaboration to address community resilience (Albano et al, 2015; Allen et al., 2019).



# Examples of Other Exercises

## South Carolina Drought and Water Shortage Scenario



<http://www.scdrought.com/pdf/SC-Drought-Water-Shortage-Tabletop-Report.pdf>

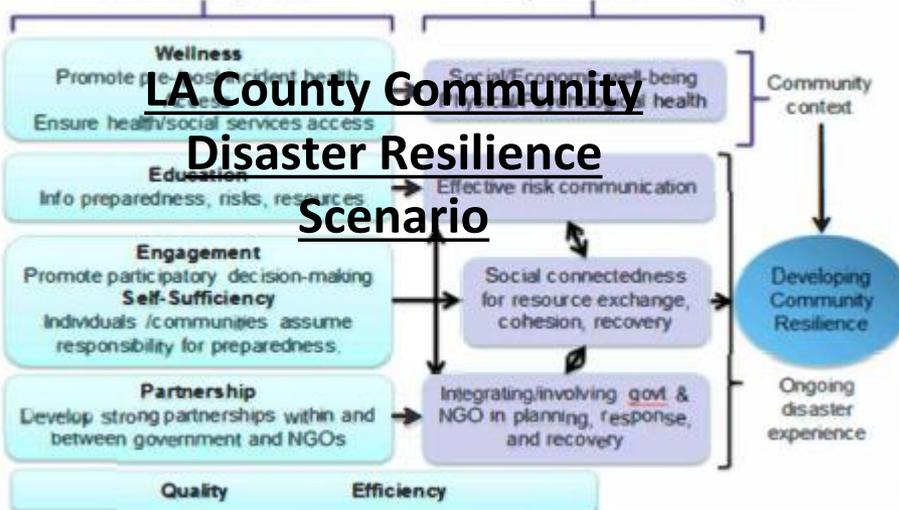


## WELCOME to the Ice Storm Grayson II Table Top Exercise

## Eastern Virginia Healthcare Coalition – Ice Storm Grayson Scenario



## Levels of community resilience Core components of community resilience



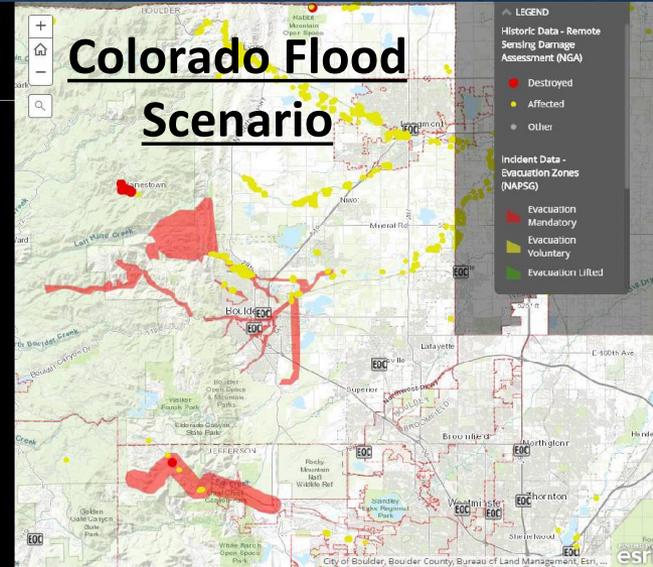
EXERCISE MODE  
SitMan: Flood Tabletop Exercise  
North Central All-Hazards

## Colorado Flood Scenario

INJECT #6 Response: Resource Management

Following the path of the 2013 flooding event, many areas in and around Boulder are flooded. Fire, law enforcement and public works are responding to and working in the impacted areas.

At least 1,750 people and 300 pets have been rescued by air and ground. Rescue efforts were hampered by continuing rain and a low cloud ceiling, which grounded National Guard helicopters September 15.



# Tabletop Exercise

Definition - "facilitated group analysis of an emergency situation" (FEMA)

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- ◆ **Goals and Objectives** - Evaluate current plans, assess levels of coordination, chain of command, response protocols
- ◆ **Scenario Identification** - realistic, relevant, winnable
- ◆ **Scenario timeline** - traditionally scenario plays out in present day
- ◆ **Participants** - selected to reflect specific sectors who typically are involved in responding to an event
- ◆ **Briefing** - up to a week in advance
- ◆ **Exercise timeline** - typically one day event
- ◆ **Injects (typically 2-6)** - An inject adds new information or describes an additional event or circumstance that requires a response or action from the participants
- ◆ **Follow up** - immediate debriefing (hot wash) and detailed assessment in an after-action report

# Community Resilience Scenario Planning Exercise

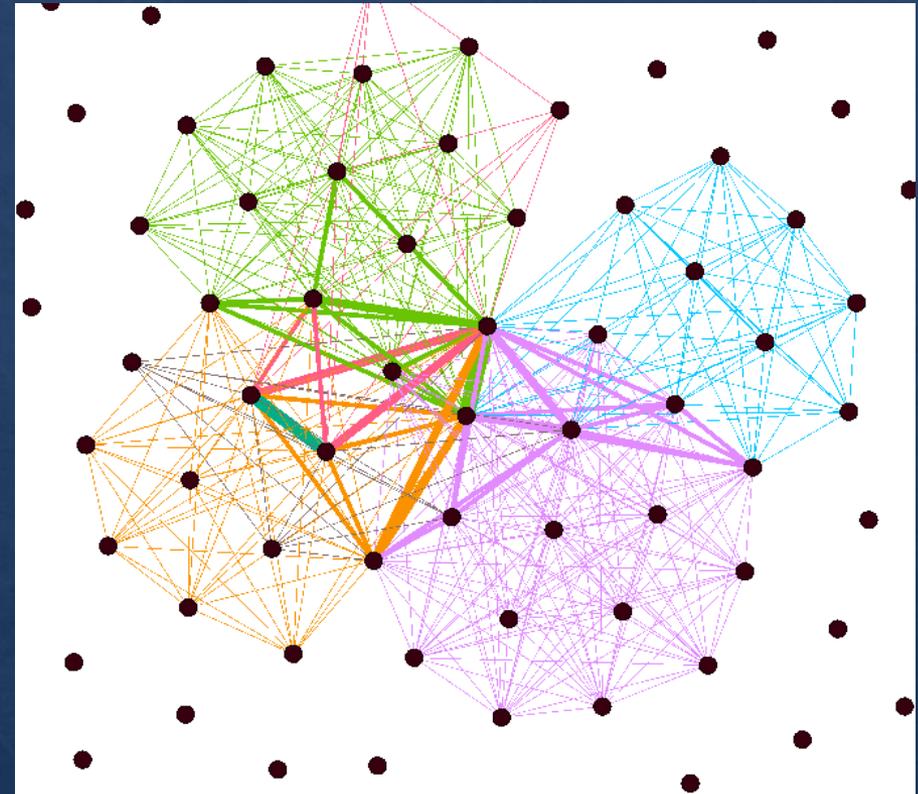
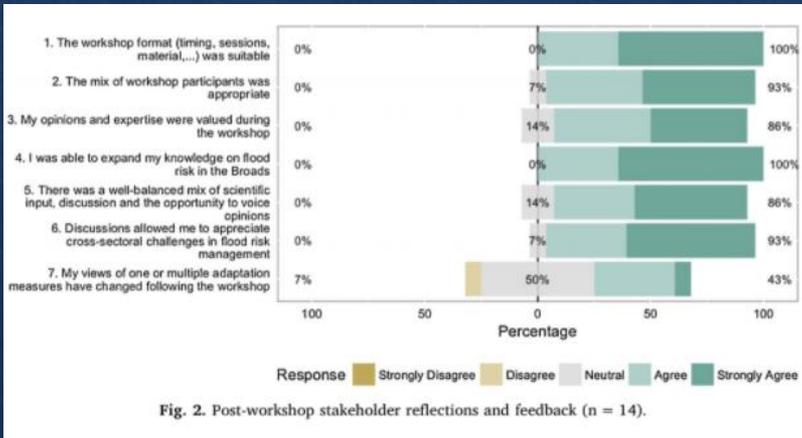
- ◆ Scenario – tests different areas of community resilience that might not be strictly disaster related such as mental health, etc.
- ◆ Pre-Survey
- ◆ Timeline – may be longer timeline (future events)
- ◆ Participants – diverse stakeholders (a broad range of community sectors)
- ◆ Injects – might focus on engagement, self-sufficiency, partnerships, self-assessments
- ◆ Wrap up
- ◆ Post-Survey

Traditional Disaster Preparedness Approach Focuses On:	Community Resilience Approach Focuses On:
<b>Individual households</b> and their readiness to respond to emergencies	<b>Community members working together</b> to respond to and recover from emergencies
<b>Disaster-specific</b> functions (e.g., earthquake building codes, training staff to provide first aid)	Merging of other community efforts that build <b>social, economic, and health well-being</b>
<b>Government's response</b> in the first few days and weeks after a disaster	<b>Diverse network of government and nongovernmental organizations</b> in preparing for, responding to and recovering from disaster
<b>Emergency plans and supplies</b> only	<b>Collaboration and engagement</b> of the whole of community for problem-solving
Self-sufficient <b>individuals or households</b>	Self-sufficient community through <b>neighbor-to-neighbor connections and strong social networks</b>

<http://www.laresilience.org/documents/resilience-builder>

# Assessment

- ◇ Pre-survey – determine risk awareness
- ◇ Post-survey – determine shifts in risk awareness and partnerships
- ◇ Metrics- social network analysis

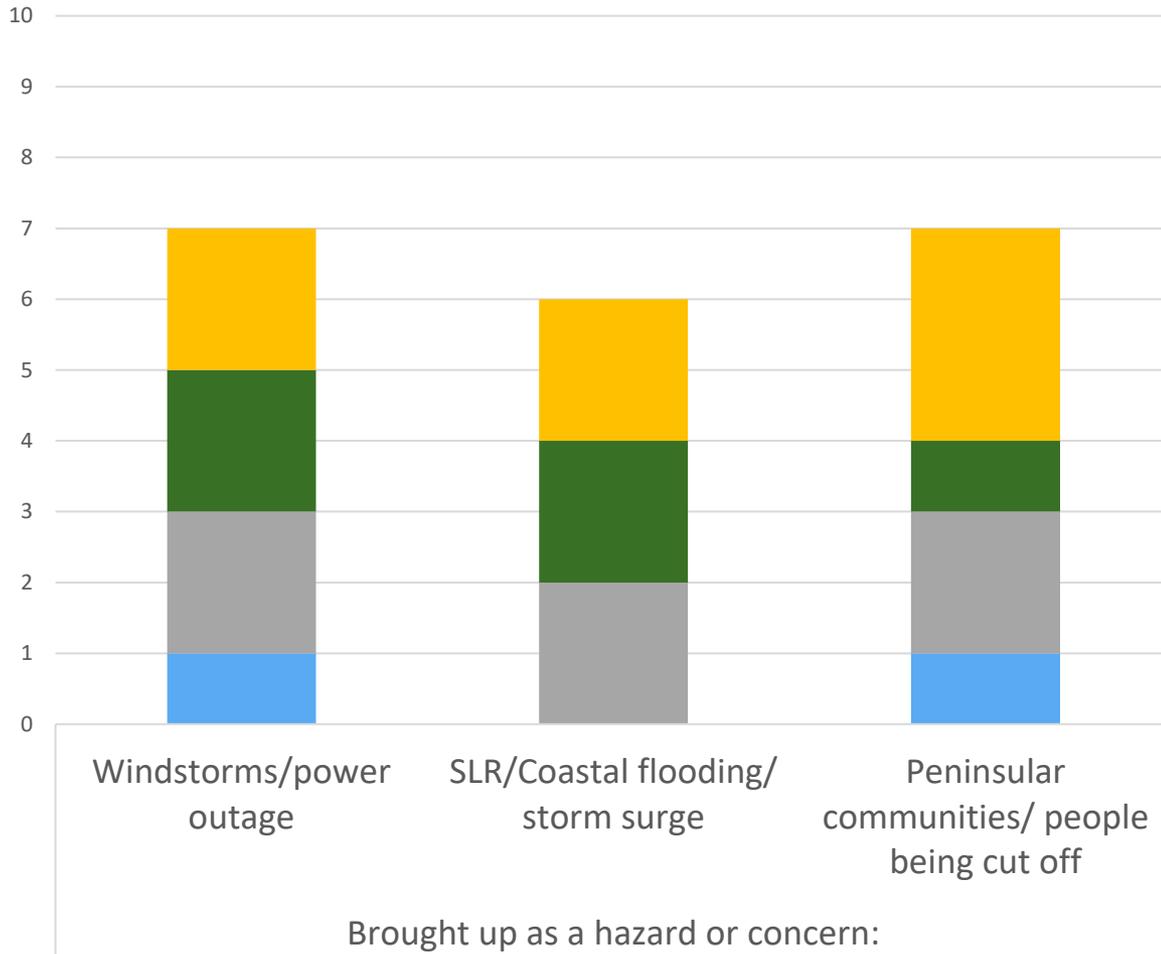


What groups (points) are in the network

How connected (lines) are groups to one another in the network

# A Realistic Event

## Identified hazards/concerns



“Floods...or anything that would cause people to lose access to their communities...or access in or access out of wherever they are”

“People who are coming to our food pantry are already vulnerable as far as being able to get food and so if they lose power and they lose whatever's in their freezers, for instance, now their small supply of food is even smaller.”

Representatives from **emergency responders**, **social service agencies**, **conservation organizations**, municipalities

# Project Advisory Committee

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- Town of Brunswick
- Town of Phippsburg
- Maine DEP
- Harpswell Conservation Commission
- Good Shepherd Food Bank
- AARP
- Red Cross
- Maine Emergency Management Agency
- Sagadahoc County Emergency Management Agency

## Next Steps

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1. Finish exercise and evaluation development
2. Hold the exercise in 2021 with representatives from all the sectors in the region
3. Through the exercise: identify opportunities to strengthen collaboration across sectors, facilitate regional planning for social resilience, and increase support for vulnerable populations
4. Develop guidance documents and outreach materials that can be shared with communities in the region and also guidance documents about the exercise itself so that it could be replicated in other locations

# The Social Resilience Project:

## Connecting Sectors to Increase Regional Community Resilience in Southern Midcoast Maine

Questions?

Thank you to our funders:



**Bowdoin**

