

Developing a Self-Assessment Tool for Maine Coastal Communities to Evaluate Flood Vulnerability and Plan for Resilience

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Introduction

Coastal flooding is one of the most significant natural hazards impacting communities along Maine's 5,300-mile coastline. The occurrence of minor and moderate coastal flooding has become significantly more frequent in the last decade. Increasing storm intensity and frequency, as indicated by a 70% increase in heavy precipitation events between 1958 and 2010¹, coupled with rising sea levels, will only exacerbate impacts of coastal flooding and associated threats to people, property, and the natural environment.



To prepare for intensifying threats from increasing precipitation and rising seas, local decision makers need information and tools that allow them to better understand risks and vulnerabilities posed by flood hazards and identify proactive steps to increase flood resilience. Strained resources, limited capacity, and a lack of directive are significant barriers to moving resilience efforts forward in Maine's

coastal communities. In an effort to address these challenges and assist communities with increasing their resilience, the Maine Coastal Program developed the Maine Flood Resilience Checklist, a simple and practical self-assessment tool for communities to evaluate how well prepared they are for existing and future flood hazards.



Flooding in Portland, ME, 9/30/15, resulting from heavy rainfall, higher than normal tide, and a small storm surge.

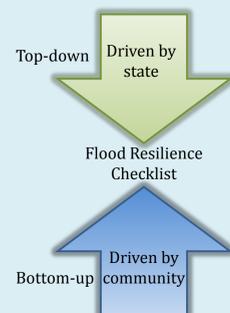
Development Process

The Maine Flood Resilience Checklist was developed through an iterative, collaborative process that involved key state agency programs and regional and municipal stakeholders. The development process included:

- Literature review
- Investigation and evaluation of existing similar tools and processes
- Semi-structured interviews
- Interagency review

Select regional and municipal officials were interviewed about the concept, content, and implementation process of the Checklist. Key findings included:

- Technical assistance from trusted sources and funding support are vital
- Checklist should be linked to community planning
- Checklist needs to move beyond traditional vulnerability assessments and yield identification of practical adaptation and mitigation actions
- Checklist needs to be flexible
- State should recommend, but not require, actions to enhance resilience at the local level



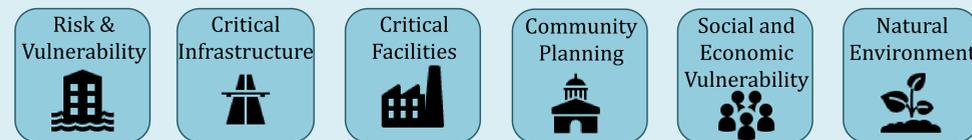
Based on interview findings, the Flood Resilience Checklist was designed to provide top-down guidance and support to promote a bottom-up approach to community resilience.

Flood Resilience Checklist

Content

The Maine Flood Resilience Checklist is a non-regulatory self-assessment tool designed to assist Maine's coastal communities evaluate how well positioned they are to prepare for, respond to, and recover from flooding events and build capacity for adaptation. It offers an integrated and practical framework for examining local flood risk, evaluating vulnerability of the natural, built, and social environments, and identifying opportunities to enhance flood resilience.

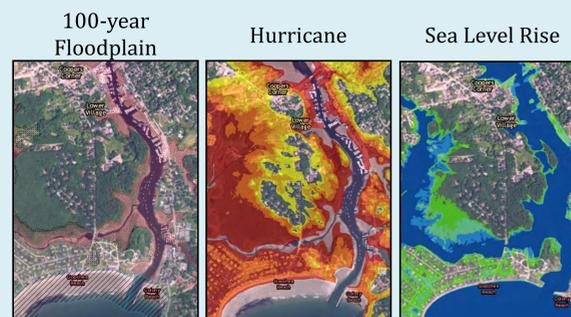
The Checklist is comprised of a series of 'yes' 'no' questions based on indicators of resilience identified in academic literature, existing vulnerability assessment tools, and Maine-specific conditions. The questions integrate various community sectors, including land use planning, hazard mitigation, and emergency management, and are organized into six main sections:



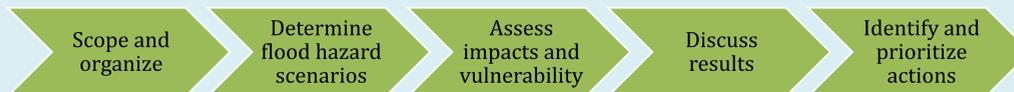
The questions aim to move beyond the theory of resiliency by translating indicators of resilience into practical, actionable information. For example, an indicator commonly linked to community resilience is percentage of non-native English speakers within a community. Rather than asking what percentage of a community's population is made up of non-native English speakers, the Checklist poses the question of whether or not a community publishes and distributes flood hazard materials in the major languages spoken in the community. Each question is phrased in a way that it offers suggested actions a community can take to decrease flood vulnerability.

Process

The Checklist is designed to be completed using a community-based, facilitated discussion process in which key municipal staff and decision makers participate in a dialogue about local flood vulnerability, how well existing planning addresses flood hazards, and ways to improve resilience. The process incorporates flexibility, allowing communities to examine hazard scenarios and impacts based on local interests, values, and context.



Communities can use local data and online mapping tools developed by the Maine Geological Survey to assess their vulnerability to existing and potential future flood hazards, including hurricanes and sea level rise scenarios.



- Planning staff
- Code enforcement officials
- Emergency managers
- Floodplain managers
- Hazard mitigation officials
- Public works officials
- Municipal engineer
- Economic development staff
- Local leaders

Suggested participants for communities to involve in the Checklist process.

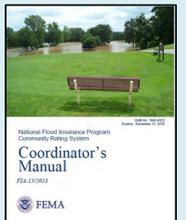
Regional Planning Organizations (RPOs), which receive funding from the state to provide essential planning and technical assistance to municipalities within their respective regions, are largely viewed by Maine communities as trusted sources of information. As such, RPO staff will be trained to lead the facilitated discussion process associated with the Checklist with their respective communities.

Connecting to the Community Rating System



The National Flood Insurance Program (NFIP) Community Rating System (CRS) is a voluntary program that encourages and rewards community activities that exceed the minimum NFIP standards by providing reduced flood insurance premiums for the community's policyholders². As participating communities engage in activities that reduce flood risk, they accrue points and residents become eligible for increased premium discounts.

The Maine Flood Resilience Checklist incorporates CRS-related information to help communities identify activities that may provide valuable CRS credit and yield savings on flood insurance. Elements of the Checklist that relate to creditable activities are highlighted and the corresponding points, as outlined in the 2013 CRS Coordinator's Manual, are identified.



Next Steps

- Pilot the Flood Resilience Checklist and associated implementation process with the coastal community of Saco and the local Regional Planning Organization
- Evaluate and refine the Checklist and implementation process
- Host a train-the-trainer workshop for Regional Planning Organizations and local environmental organizations on the content and implementation of the Checklist
- Develop outreach and marketing material to promote the Checklist

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References

1. Groisman, P. Y., R. W. Knight, and O. G. Zolina, 2013: Recent trends in regional and global intense precipitation patterns. *Climate Vulnerability*, R.A. Pielke, Sr., Ed., Academic Press, 25-55.
2. U.S. Department of Homeland Security, Federal Emergency Management Agency. (2016). *Community Rating System* [Fact sheet]. retrieved from <https://www.fema.gov/media-library/assets/documents/9998>

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