



Preparing for the Big One

**HELPING YOUR COMMUNITY REDUCE IMPACTS OF CATASTROPHIC
WEATHER EVENTS**

Agenda & Presenter Introduction

- I. **Lynne Doyle, NH State Mitigation Planner** - The advantages of being prepared and having an updated hazard mitigation plan
- II. **Lisa Murphy, Southwest Region Planning Commission** - Flooding & erosion
- III. **Vickie Davis, Upper Valley Lake Sunapee RPC**- Extreme temperatures and drought
- IV. **Jennifer Rowden, Rockingham Planning Commission** - Coastal flooding and severe wind/tropical storms
- V. **Natasha Cole, NH State Mitigation Officer** - Steps that towns should take to secure funding for eligible projects related to weather events

Local Emergency Management Tools

Hazard Mitigation Plans

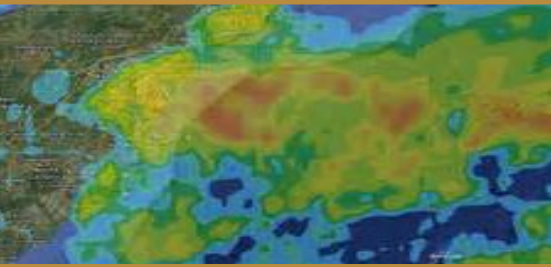
- ▶ Helps reduce the loss of life and property in the event of a hazardous event
- ▶ 5-year updates with funding from FEMA and administered by NH HSEM
- ▶ Meetings with local members of the town staff and volunteers to provide the local knowledge

Emergency Operations Plans

- ▶ Helps provide order and efficiency during a hazardous event
- ▶ 5-year updates with funding from FEMA and administered by NH HSEM
- ▶ Similar method of plan update as Hazard Mitigation Plan



Source: NH Journal



Hazard Mitigation Plan

Local Hazard Mitigation Plan



- Reduces loss of life and property by minimizing the impact of disasters
- Title 44 CFR Section 201
- LHMP enhances ability to apply for other FEMA Funded Mitigation Projects

Who should be Involved?



- Plan Owner
- Participating jurisdictions
- Plan Stakeholders
- Public
- Plan Developer

Important Dates



- Update every 5 years – Plan is living Document
- Planning Process - 2 years+
- New Guidance – April 19, 2023

Contact Information



HAZARD MITIGATION PLANS AND GRANTS nh.hm@dos.nh.gov

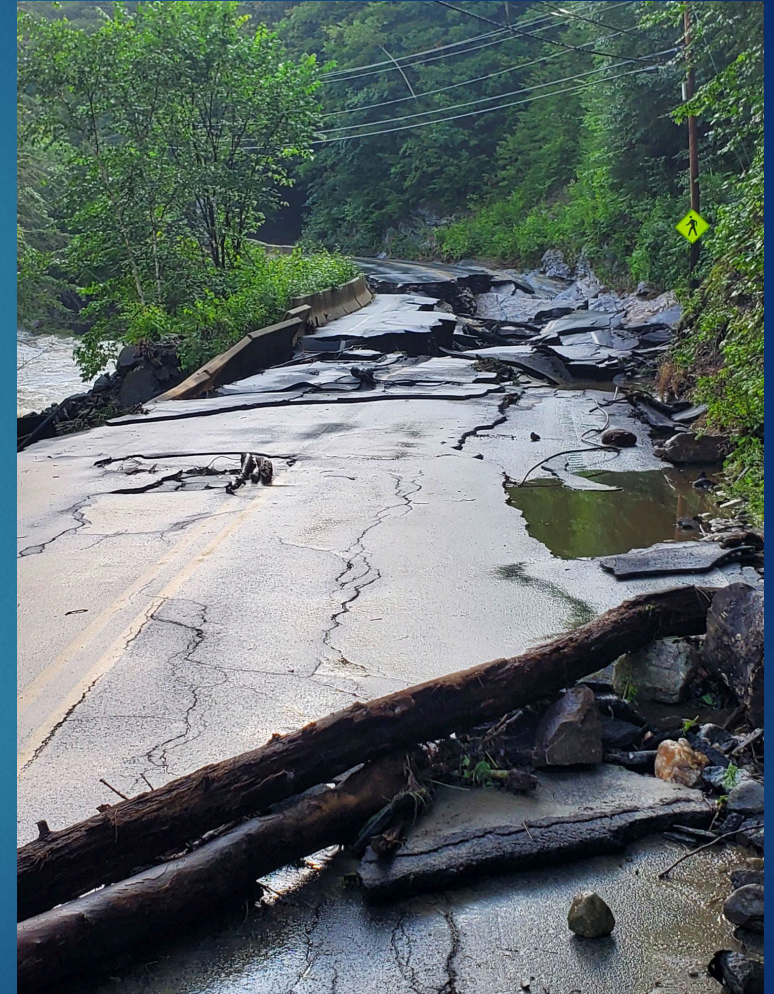
Vanesa Urango
Chief, Mitigation & Recovery
vanesa.e.urango@dos.nh.gov
Desk: 603.223.3602 | Cell: 603.931.0309

Natasha Cole
Asst. Chief, State Hazard Mitigation Officer
Natasha.l.cole@dos.nh.gov
Desk: 603.223.4243 | Cell: 603.688.5813

Lynne Doyle
Hazard Mitigation Planner
lynne.e.doyle@dos.nh.gov
Desk: 603.227.8780 | Cell: 603.688.5596

Lauren Morgan
Hazard Mitigation Coordinator
lauren.e.morgan@dos.nh.gov
Desk: 603.223.3759 | Cell: 603.731.6937

Impact of Heavy Weather Events



Flooding Strategies

- ▶ Examples of Mitigation Strategies for the Action Plan
 - ▶ Do a culvert inventory to assess the size and condition of culverts
 - ▶ Upgrade culverts and drainage infrastructure to increase capacity
 - ▶ Promote effective land use planning based on hazard areas
 - ▶ Elevate structures above the floodplain
 - ▶ Become a member of NFIP
 - ▶ Hold a community-wide NFIP workshop to help residents understand the importance of flood insurance

Erosion/Landslide



Erosion/Landslide Strategies

- ▶ Examples of Mitigation Strategies for the Action Plan
 - ▶ Adopt erosion and sedimentation control regulations
 - ▶ Implement soil stabilization measures on steep, publicly-owned slopes
 - ▶ Install catch-fall nets for rocks at steep slopes near roadways
 - ▶ Remove existing buildings and infrastructure from landslide areas
 - ▶ Stabilize steep slopes with effective ground covers and plantings
 - ▶ Evaluate slopes near roadways and determine actions needed to prevent road damage during heavy storm events

DROUGHT

- ▶ Definition: A period of below-normal precipitation, either rain or snow, can cause reduced soil moisture or groundwater, diminished stream flow, crop damage, and a general water shortage.
- ▶ This year: Summer precipitation deficits across NH June 1-August 8, 2022 50-75% of normal; NH State Climatology UNH
- ▶ Predicting: Many droughts can be predicted up to a month in advance, and in rare cases it may be possible to predict drought conditions more than a year in advance. However, the complexity of Earth's climate makes drought forecasting very difficult. Now have "flash droughts."



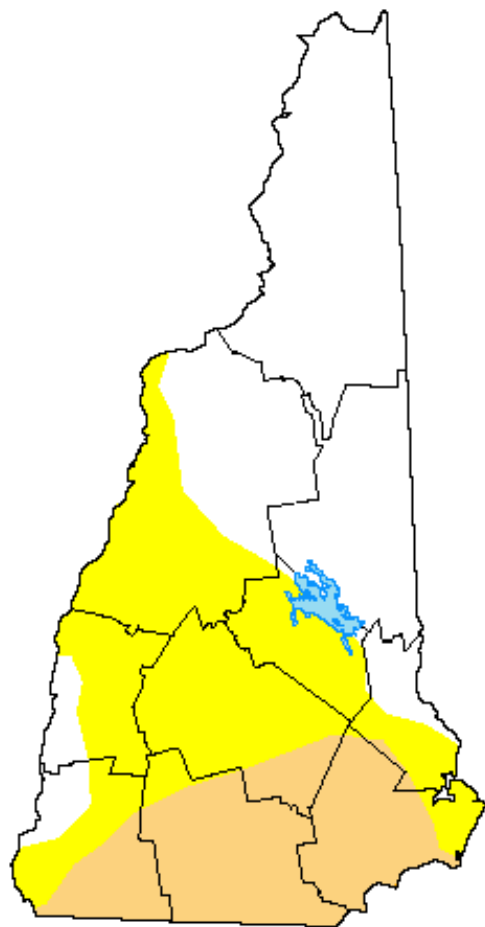


Drought: Observed Recent Historical Impacts in NH







- voluntary and mandatory water restrictions
- maple syrup production lower
- crops requiring irrigation
- farmers hauling water to cows
- decreased apple size
- increased stormwater runoff!

U.S. Drought Monitor New Hampshire

October 18, 2022
(Released Thursday, Oct. 20, 2022)
Valid 8 a.m. EDT



Intensity:

-  None
-  D0 Abnormally Dry
-  D1 Moderate Drought
-  D2 Severe Drought
-  D3 Extreme Drought
-  D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

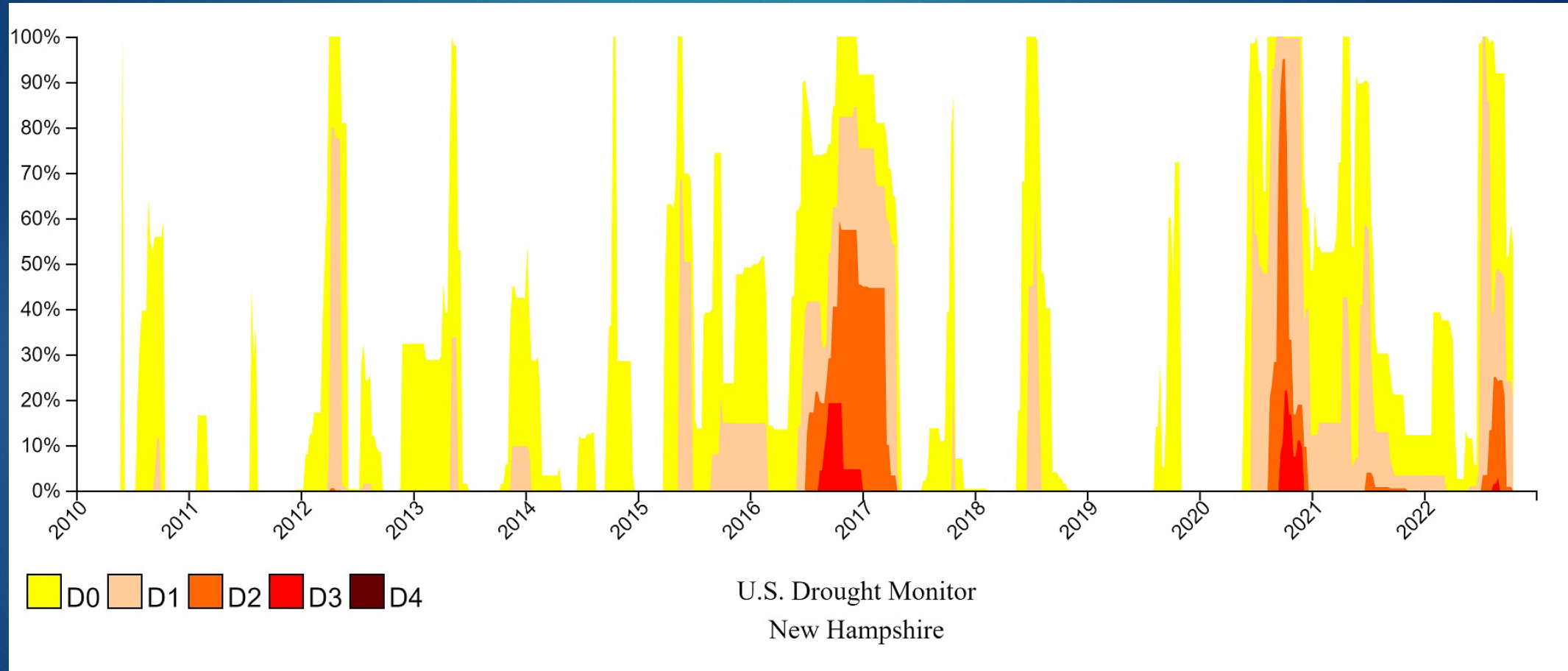
Author:

Adam Hartman
NOAA/NWS/NCEP/CPC



droughtmonitor.unl.edu

NH Drought History 2010 - Present



Drought Mitigation Strategies

- ▶ Rain Capture (Barrels and Rain Gardens)
- ▶ Mulching garden, smaller lawns
- ▶ Energy efficient shower heads, toilets....
- ▶ Local ordinances development to restrict watering lawns (NH RSA 41:11-d; Water System customer NH RSA 38:26)
- ▶ Drought-tolerant landscaping
- ▶ Reduce run-off with permeable surfaces to promote groundwater recharge
- ▶ Education!
- ▶ What else?



EXTREME HEAT


- ▶ Definition: A period of high heat and humidity with temperatures above 90 degrees at least two to three continuous days.
- ▶ Impacts: Human Health, Agriculture, Energy.
- ▶ Predictions: Difficult as unprecedented temperature patterns with no historical data.

Source: Ready.gov & APS Physics


Extreme Heat Effect: Heat Stroke

HEAT STROKE


INFOGRAPHIC ELEMENTS




104 F+
AVOID THE SUN
dolor sit amet consai
lorem ipsum ectetur




SYMPTOMS




RAPID HEARTBEAT




NO SWEATING
HOT / RED SKIN



DIZZINESS & HEADACHE




UNCONSCIOUSNESS




VOMITING


PREVENTION




NO ALCOHOL




DON'T WEAR THE
THICK CLOTHES




LIMIT OUTDOOR TIME




WEAR
PROTECTION




USE A SUNSCREEN
USE A UMBRELLA



DRINK
ENOUGH WATER



COOL
SHOWERING



THE DANGER OF WORKING OUT IN THE HOT WEATHER

Extreme Heat and Pets

CAR TEMPERATURE PET SAFETY CHART

How long does it take
for a car to get HOT?

VEHICLE TEMPERATURE

Outside Temp (F)	Inside Temp (F)	
	10mins	30mins
70°	89°	104°
75°	94°	109°
80°	99°	114°
85°	104°	119°
90°	109°	124°
95°	114°	129°

WITHIN MINUTES
INTERIOR
CAR TEMPS
CAN BE DEADLY!



Extreme Heat Mitigation Strategies

- ▶ Do not rely on fans as this is a false sense of comfort
- ▶ Cover windows with drapes or shades
- ▶ Weather-strip doors and windows
- ▶ Use window reflectors to reflect heat out
- ▶ Add insulation to home
- ▶ Use powered attic ventilator or attic fan to clear out hot air
- ▶ Install window air conditioning and insulate around them
- ▶ Landscaping urban heat islands
- ▶ NH Saves energy efficiency rebates and audits (see website)
- ▶ Low-income assistance options (Community Action Programs)
- ▶ Cooling stations and potable water provided by community

EXTREME COLD

- ▶ Definition: Depends on part of the country. In the north, it's several degrees below zero. With wind chill, 20° or below can cause frostbite.
- ▶ Impacts: Health (hypothermia, frostbite), frozen and burst water pipes, chimney fires, lack of heating fuel



Extreme Cold Mitigation Strategies

- ▶ Warming stations provided by community
- ▶ Fuel programs
- ▶ Weatherization – Energy Audits
- ▶ Low income assistance – NH Community Action Programs
- ▶ Education (preparation, clean the chimney)
- ▶ What Else?



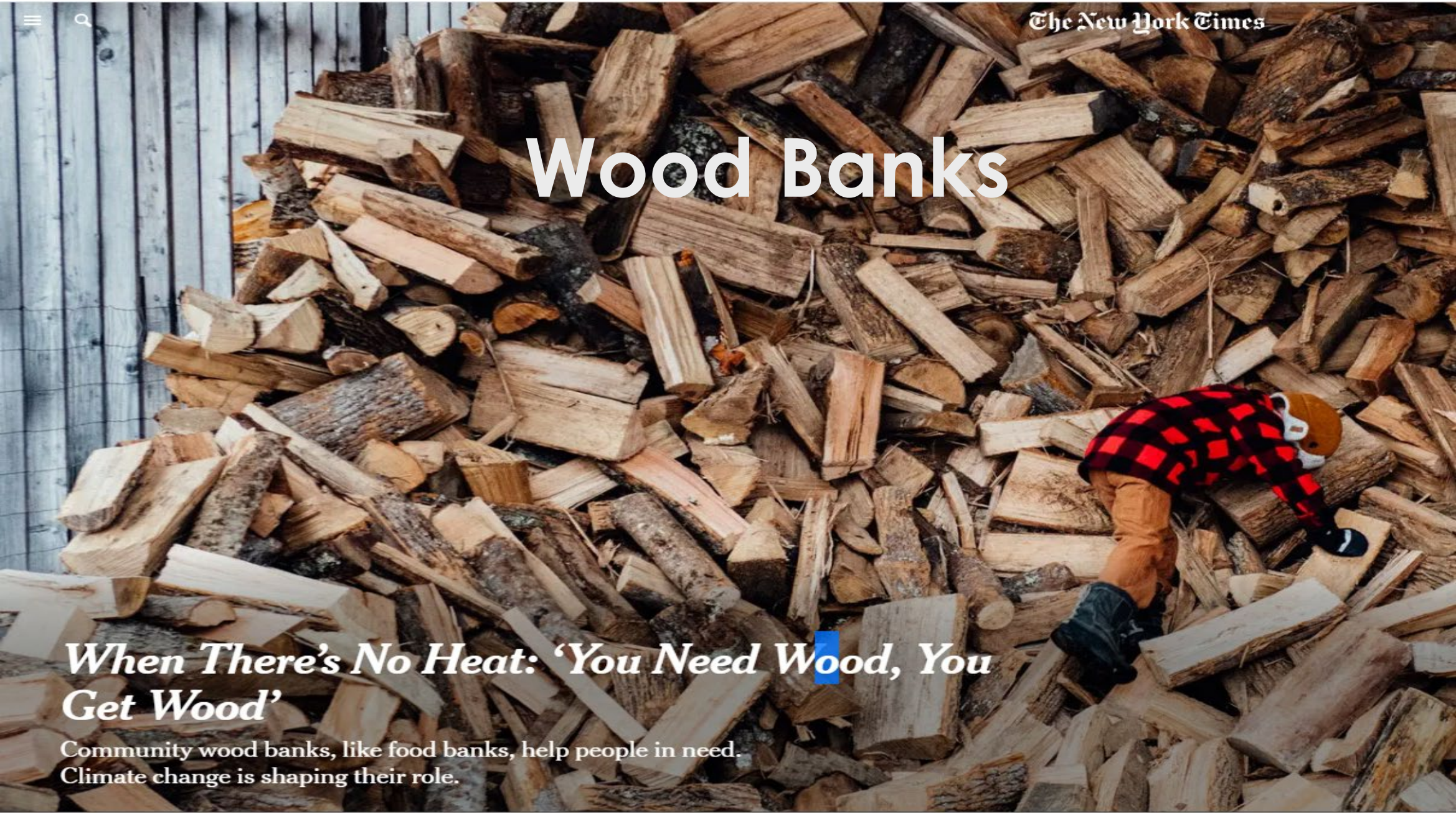
Window Inserts Programs

- ▶ Improve warmth and comfort of interior spaces, lower heating costs, and reduce carbon dioxide pollution.

Wood Banks

When There's No Heat: 'You Need Wood, You Get Wood'

Community wood banks, like food banks, help people in need. Climate change is shaping their role.



Extreme Cold and Pets



COLD WEATHER



**KEEP PETS
INDOORS**



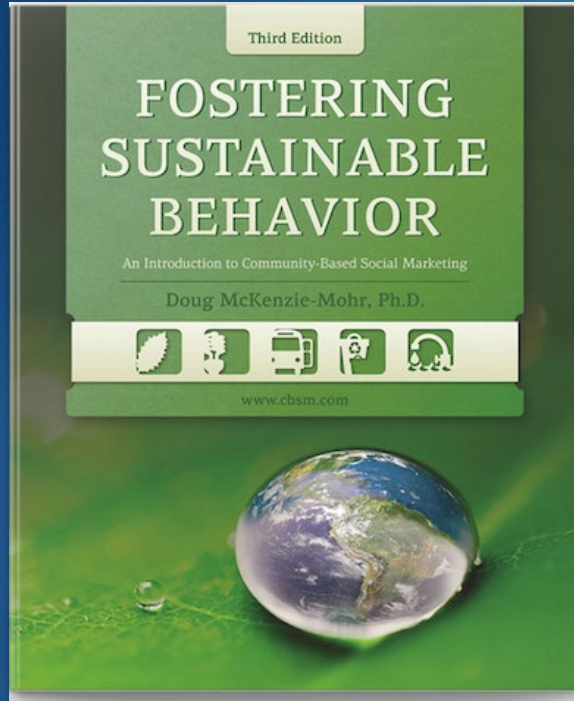
**TAP ON THE HOOD
BEFORE STARTING
YOUR CAR**



**PROTECT YOUR DOG
WITH A WARM DRY
COAT WHEN OUTDOORS**



**CHECK AND WIPE
THEIR PAWS**



Community Based Social Marketing

FINDING THE BARRIERS AND INCENTIVES TO
CHANGE BEHAVIORS | DOUG MCKENZIE-MOHR

Climate Change Impacts & How NH Deals With Hazards



NH Hazards & Climate Change Impacts

2018 SHMP Identified Hazards		
Natural Hazards	Technological Hazards	Human-caused Hazards
<ul style="list-style-type: none"> • Avalanches • Coastal Flooding • Inland Flooding • Drought • Earthquakes • Extreme Temperatures • High Wind Events • Infectious Diseases • Landslides • Lightning • Severe Winter Weather • Solar Storms and Space Weather • Tropical and Post-Tropical Cyclones • Wildfires 	<ul style="list-style-type: none"> • Aging Infrastructure • Conflagration • Dam Failure • Hazardous Materials • Known and Emerging Contaminates • Long Term Utility Outage • Radiological 	<ul style="list-style-type: none"> • Cyber Event • Mass Casualty Incident • Terrorism/Violence • Transport Accident



NH Hazards & Climate Change Impacts



2018 SHMP Identified Hazards		
Natural Hazards	Technological Hazards	Human-caused Hazards
<ul style="list-style-type: none"> • Avalanches • Coastal Flooding • Inland Flooding • Drought • Earthquakes • Extreme Temperatures • High Wind Events • Infectious Diseases • Landslides • Lightning • Severe Winter Weather • Solar Storms and Space Weather • Tropical and Post-Tropical Cyclones • Wildfires 	<ul style="list-style-type: none"> • Aging Infrastructure • Conflagration • Dam Failure • Hazardous Materials • Known and Emerging Contaminates • Long Term Utility Outage • Radiological 	<ul style="list-style-type: none"> • Cyber Event • Mass Casualty Incident • Terrorism/Violence • Transport Accident

“All of New Hampshire is susceptible to the effects of climate change and has already begun to experience impacts including, but not limited to, an increased frequency of coastal flooding, inland flooding events caused by extreme precipitation, and increased average annual temperature.”

Climate impacts in NH – short intro

- ▶ New Hampshire Coastal Flood Risk Summary – Part I: Science

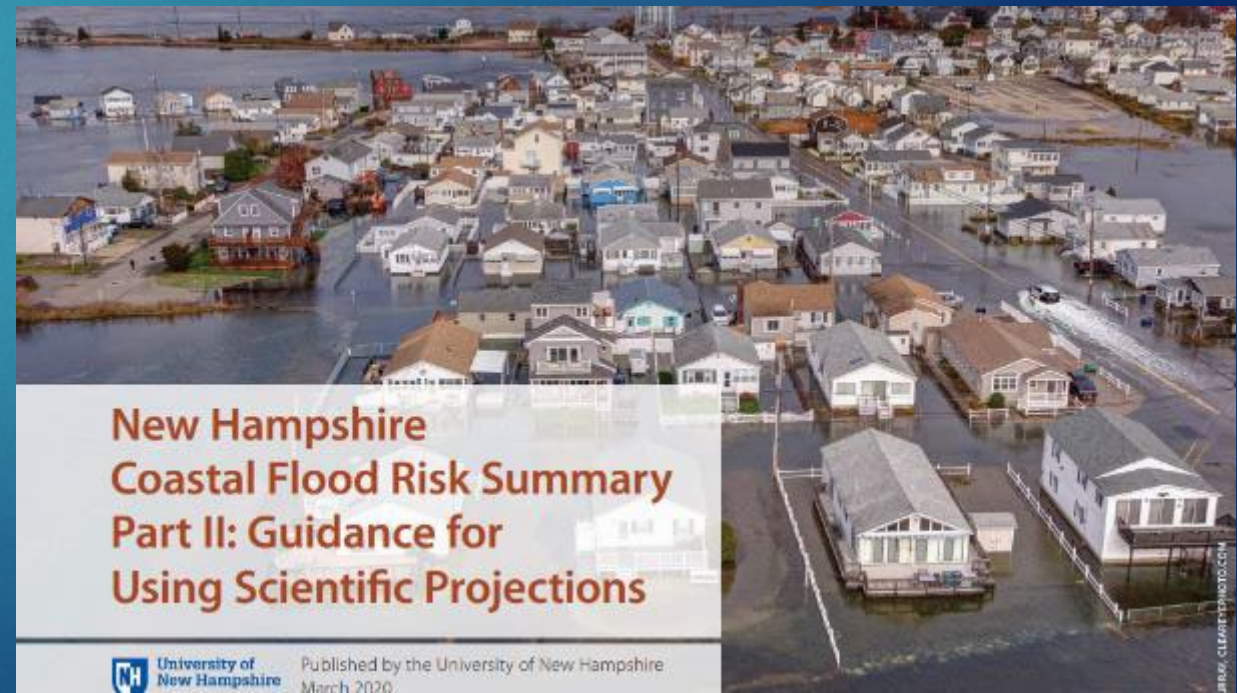
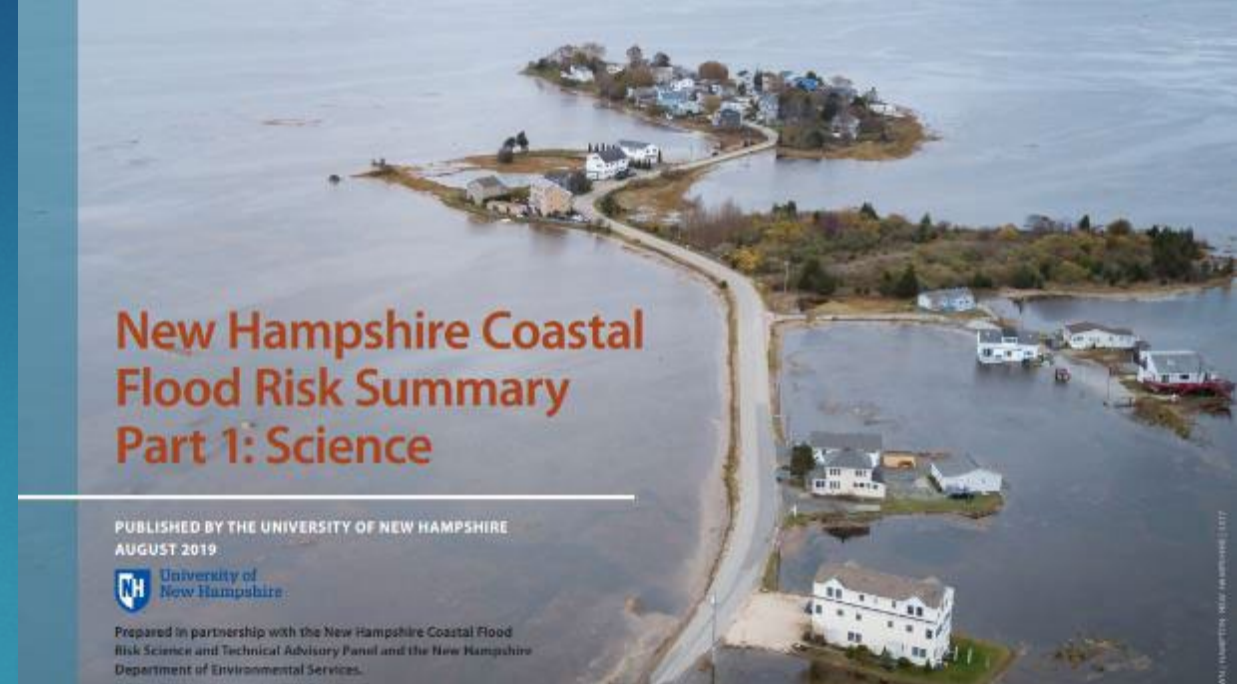
Video -

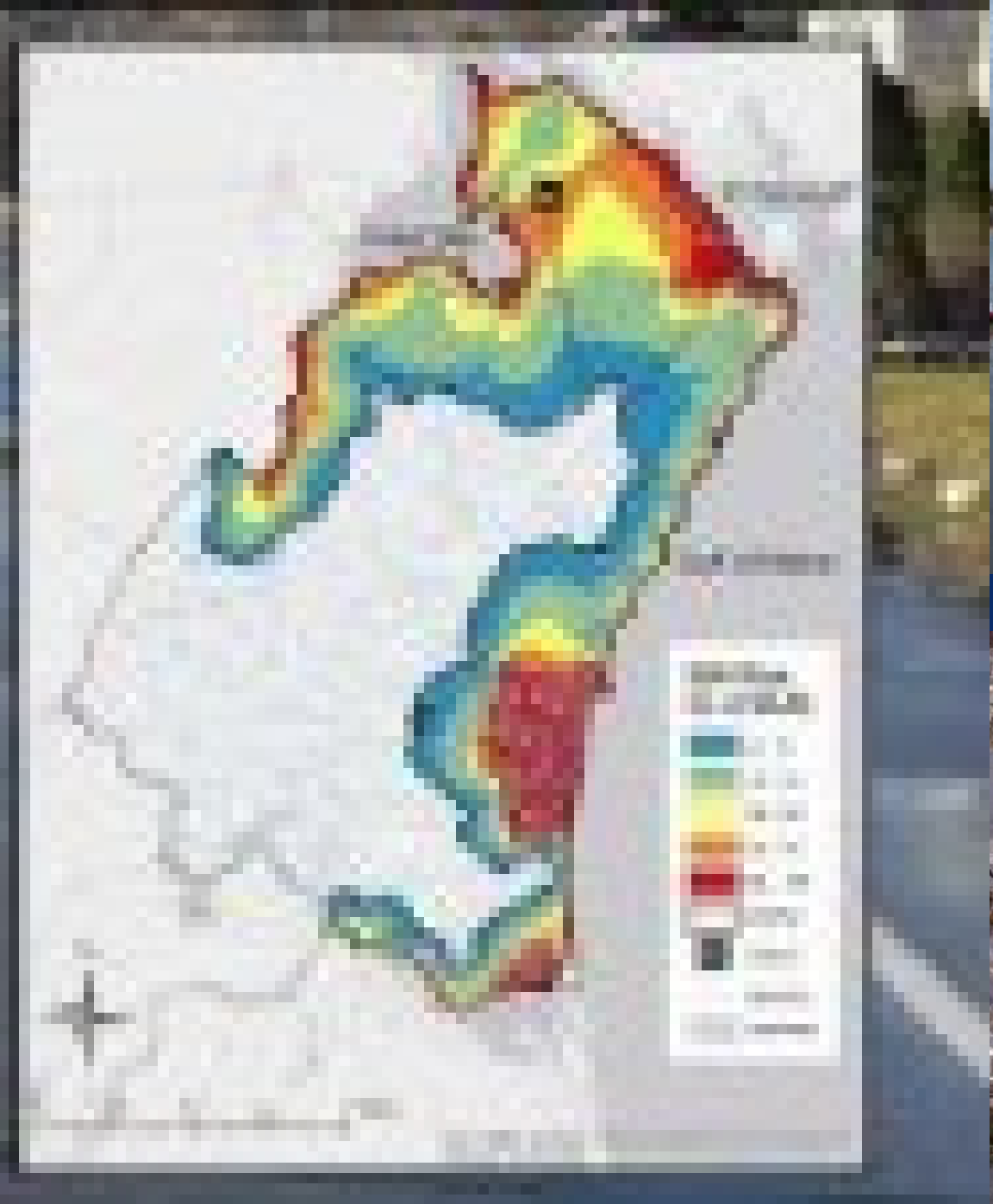
<https://www.youtube.com/watch?v=8lcXhURxyUQ>

- ▶ New Hampshire Coastal Flood Risk Summary – Part II: Guidance for Using Scientific Projections

Video -

<https://www.youtube.com/watch?v=ly4mY0iqV8M&feature=youtu.be>





Climate Resilience & Municipalities

Towns and cities are at the forefront of acting.

- NY Times – [The Way to Slow Climate Change Is as Close as Your City Hall or School Board](#) (8/26/2022)
- NH Bulletin – [‘We’re the Titanic’: Effects of climate change already changing life on Seacoast](#) – Two-part series on communities on the frontlines of climate change (7/16/2022)

NH municipalities have multiple mechanisms to increase resiliency.

- Outreach: required or voluntary public education
- Information: conducting planning efforts
- Laws: adopting regulations
- Money: financing projects directly or applying for grants and loans.

History of success from integrating resilience efforts into established planning processes.

- Local Hazard Mitigation Plans(44 CFR § 201.6)
- Master Plans (RSA 672:2)
- Capital Improvement Plans (RSA 674:5)

Local Hazard Mitigation Plans



Hampton Falls, NH Hazard Mitigation Plan Update 2019

Approved by the
Hampton Falls Select Board on July 17, 2019
As a member of a local agency of the New Hampshire Department of

This project was partially funded by
NH Homeland Security and Emergency Management



TOWN OF HAMPTON FALLS, NEW HAMPSHIRE

Vulnerability Assessment

of projected sea level rise and coastal storm surge flooding



Prepared by the
Rockingham Planning Commission

September 2015



Extent of Flooding from Sea-Level Rise and Storm Surge

Green and pink color schemes are arranged from lightest to darkest with increasing flood levels and extents.

Figure 4.
Sea-Level Rise 1.7 feet, 4.0 feet and 6.3 feet

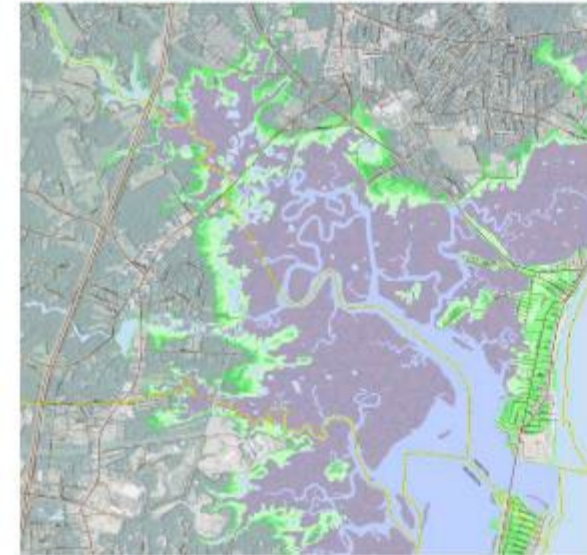
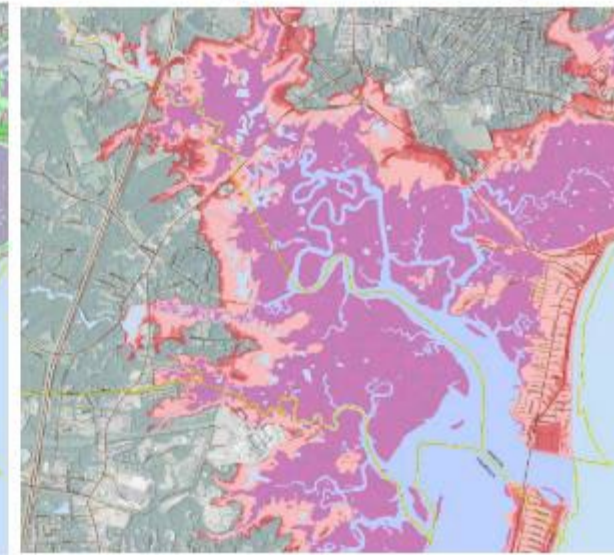


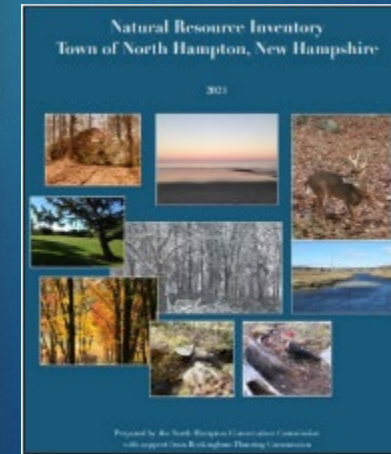
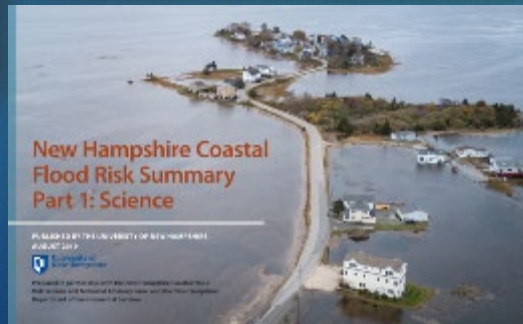
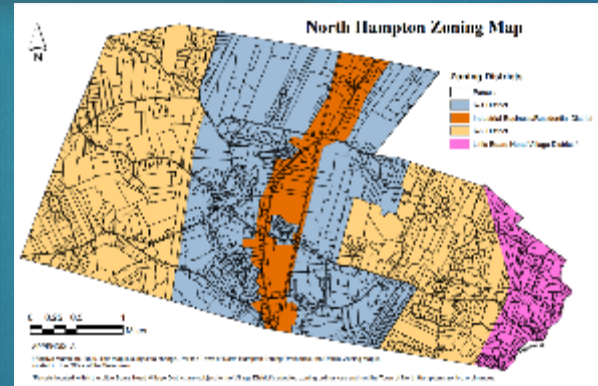
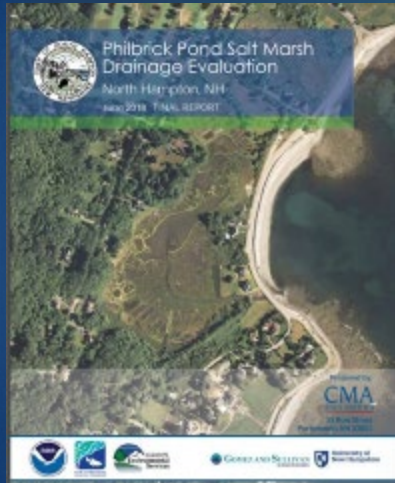
Figure 5.
Sea-Level Rise 1.7 feet, 4.0 feet and 6.3 feet with storm surge



North Hampton & Little Boar's Head Coastal Hazards & Adaptation Master Plan Chapters



- ▶ Reviewed history of impacts & actions.
- ▶ Built upon ongoing efforts and community momentum to develop comprehensive plan.
- ▶ Addressed the unique jurisdictional authority of North Hampton & LBH.
- ▶ Put best available information in one place to inform actions.



North Hampton & Little Boar's Head Coastal Hazards & Adaptation Master Plan Chapters

Acknowledgements

A key part of the development of this plan was the cooperation of the District's Committee members and staff. The following is a list of the individuals who provided input and feedback during the process. The following individuals provided input and feedback during the process:

- Little Boar's Head Village District - Staff & Committee
- Little Boar's Head Village District - Public Hearing
- Little Boar's Head Village District - Board of Selectmen
- Little Boar's Head Village District - Board of Selectmen
- North Hampton Zoning Board of Adjustments - Bob Squires
- Commercial Commission - Tom Wilson
- Heritage Commission - Ed Miller
- Agricultural Commission - Andy Day
- Town Administrator - Michael Kelly
- Emergency Management Director - Jim Quinn
- Planning Commission - Bob Squires

The plan was developed with assistance from the following organizations, staff, and consultants:

- Planning Commission - Bob Squires
- Planning Commission - Bob Squires

The plan was developed with assistance from the following organizations, staff, and consultants:

- Planning Commission - Bob Squires
- Planning Commission - Bob Squires

Share Your Input
Help North Hampton & Little Boar's Head prepare for a changing climate

Please join one of two virtual public input sessions:
January 13, 8:30-10am
or
January 20, 4:30-6pm
@ 5:00pm

Register here:
[Link to registration page]

Questions?
[Link to contact information]

Please join us for a virtual input session to share your feedback on the coastal hazards master plan chapters for North Hampton and Little Boar's Head.

At this public input session, you will have an opportunity to discuss the draft recommendations and address climate change impacts on a variety of issues, from critical infrastructure and natural resources to the local economy, public health, historic resources, and community investments. Your feedback can help inform recommendations to be included in the final plan.

North Hampton, NH
Master Plan
Coastal Hazards & Adaptation Chapter

Little Boar's Head Village District
Master Plan
Coastal Hazards & Adaptation Chapter

Adopted May 17, 2022

Town of North Hampton and Little Boar's Head Village District
Coastal Hazards and Adaptation Master Plan Chapters – Appendix C Action Plans

North Hampton and Little Boar's Head – Coastal Hazards & Adaptation Master Plan Chapters

TOWN AND VILLAGE OFFICIALS AND STAFF ACTION PLANS FOR IMPLEMENTING GOALS AND ACTIONS OF THE CHAPTER

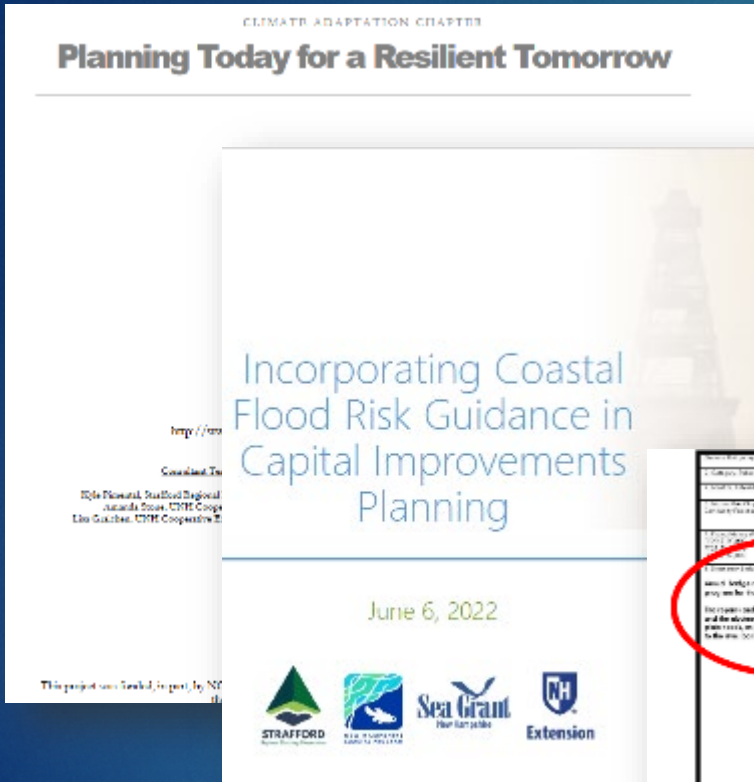
<ul style="list-style-type: none"> • CIP • Code enforcement officer • Conservation commission • DPW 	<ul style="list-style-type: none"> • Emergency services (EM, PD, FD) • Heritage commission • LBH Commissioners • Select Board + Town administrator 	<ul style="list-style-type: none"> • Town planning board/ZBA, LBH planning board/ZBA, + planning and zoning administrator • Water Commission
-----------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------

COASTAL HAZARDS & ADAPTATION MASTER PLAN CHAPTERS
ACTION PLAN TEMPLATE: [BOARD/DEPARTMENT]

ACTIONS WHERE [BOARD/DEPARTMENT] IS A RESPONSIBLE PARTY			
Action	Metric/Measurement (if applicable)	Timeframe	Responsible Parties (and Supporting Parties)

- ▶ Broad engagement throughout the project from residents, officials and staff.
- ▶ Emphasized developing realistic actions that fit within existing municipal efforts or processes when possible.
- ▶ **Result:** North Hampton is establishing a Coastal Hazards Advisory Committee to work on implementation of Action Plans, incorporating criteria into CIP, using findings in outreach efforts, and using to inform discussions with NHDOT on road projects.

Capital Improvement Plan – Dover, NH

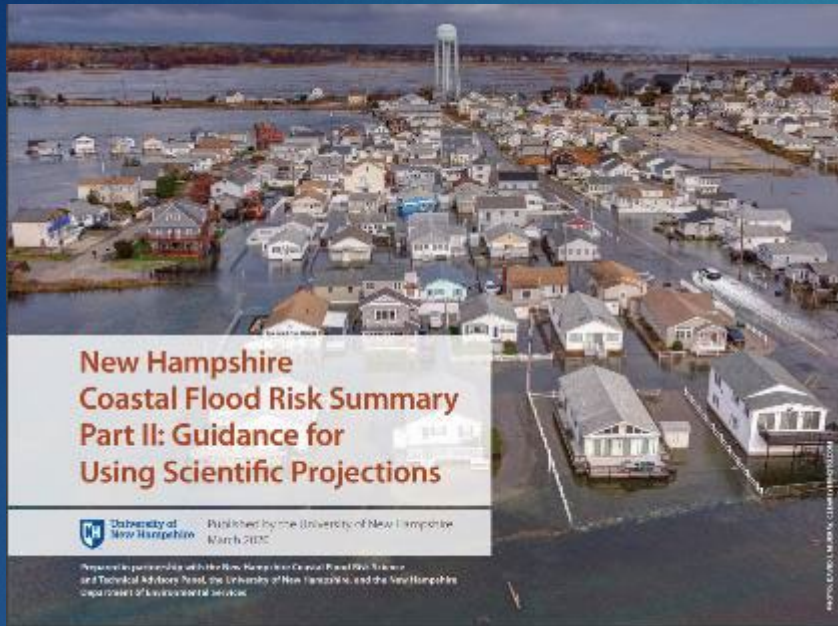


PROJECT ID	PROJECT NAME	DESCRIPTION	STATUS	START DATE	END DATE
2022-01	Annual bridge maintenance based on a bridge repair program for the City's 11 bridges.	The repairs and maintenance look at the approaches and the abutments of the bridge and address any flood plain needs, as well as impacts that may have occurred to the river banks due to sea level rise.	Planned	2022-01-01	2022-12-31

GOAL: Improve resiliency for selected projects by providing more information based on the CFR Guidance.

- Similar process as other exemplified for creating Master Plan Chapter (2018).
- Working to move actions forward through many existing City process.
- Chapter implementation strategy action item #37 – Use NH climate science report “...when siting and designing long-term public infrastructure projects and CIP projects that may be at risk to climate change impacts.
- Dover staff and officials are currently working on how to incorporate the Critical Flood Risk Guidance into CIP process.

FLOOD RISK SUMMARY



PROJECT

For the purposes of this Guidance, the term "project" refers broadly to any private, local, state, and federal planning, regulatory, or site-specific efforts that should consider and incorporate coastal flood risk projections. Examples of applicable private, local, state, or federal projects include, but are not limited to:



Planning projects: master plans; hazard mitigation plans; post-disaster redevelopment/relocation/recovery plans; emergency operations and evacuation plans; capital improvement plans; transportation improvement plans; economic development plans; open space plans; etc.



Regulatory projects: zoning ordinances; site plan and subdivision regulations; wetlands and shoreland regulations; alteration of terrain regulations; waste management regulations; etc.



Site-specific projects: new construction and redevelopment or relocation of buildings and structures; road, bridge, culvert construction, maintenance, or relocation; shoreline stabilization projects; wetland restoration; land conservation; etc.

NH Coastal Flood Risk Summary: Guidance

Video link - www.youtube.com/watch?v=ly4mY0iqV8M

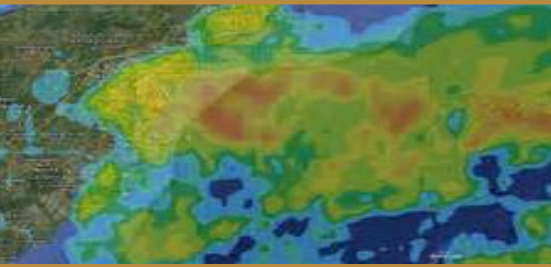
- Provides science-based and user-informed guiding principles and a step-by-step approach for incorporating the updated coastal flood risk projections from "Part I: Science" into private, local, state, and federal projects, including planning, regulatory and site-specific efforts.



Figure 1. The seven step approach for selecting and incorporating updated coastal flood risk projections into projects is intended to be iterative.



Source: NH Journal



Hazard Mitigation Grant Programs

What Is Hazard Mitigation



- Any sustainable action that reduces or eliminates the long-term risk to people and property from future disasters

Funding Opportunities



Hazard Mitigation Grant Program (HMGP)

Pre-Disaster Mitigation (PDM)

High Hazard Potential Dam (HHPD)

Building Resilient Infrastructure & Communities (BRIC)

Hazard Mitigation Grant Program (HMGP)



- Develop hazard mitigation plans
- Rebuild in a manner which mitigates/reduces future disaster losses

Pre-Disaster Mitigation (PDM)



- Implement sustainable cost-effective measures designed to reduce the risk of individuals and property from future natural disasters
- Reduces the reliance on Federal funding from future disasters

High Hazard Potential Dam (HHPD)



- Technical, planning, design and construction assistance for rehabilitation of eligible high hazard dams

Building Resilient Infrastructure & Communities (BRIC)



- Provides funding for hazard mitigation planning and implementation of mitigation prior to disasters
- Fiscal Funding Year 2022 Allocations
 - \$2 Million Per State
 - \$1 Million for planning

BRIC Program Priorities



- Incentivize natural hazard reduction activities that mitigate risk to public infrastructure and disadvantaged communities
- Incorporate nature-based solutions, including those designed to reduce carbon emissions
- Increase funding for the adoption and enforcement of the latest building codes
- Encourage hazard mitigation projects that meet multiple program priorities

Contact Information



HAZARD MITIGATION PLANS AND GRANTS nh.hm@dos.nh.gov

Vanesa Urango
Chief, Mitigation & Recovery
vanesa.e.urango@dos.nh.gov
Desk: 603.223.3602 | Cell: 603.931.0309

Natasha Cole
Asst. Chief, State Hazard Mitigation Officer
natasha.l.cole@dos.nh.gov
Desk: 603.223.4243 | Cell: 603.688.5813

Lynne Doyle
Hazard Mitigation Planner
lynne.e.doyle@dos.nh.gov
Desk: 603.223.3650 | Cell: 603.931.2556

Lauren Morgan
Hazard Mitigation Coordinator
lauren.e.morgan@dos.nh.gov
Desk: 603.223.3759 | Cell: 603.731.6937

Questions & Thank you!

- ▶ Natasha Cole: NH HSEM natasha.l.cole@dos.nh.gov
- ▶ Lynne Doyle: NH HSEM lynne.e.doyle@dos.nh.gov
- ▶ Vickie Davis: Upper Valley Lake Sunapee Regional Planning Commission vdavis@uvlsrpc.org
- ▶ Lisa Murphy: Southwest Region Planning Commission lmurphy@swrpc.org
- ▶ Jennifer Rowden: Rockingham Planning Commission jrowdon@therpc.org