

# Sound the “High Water” Alarm

Effects of Sea Level Rise on Maine’s Wastewater Infrastructure

January 2022

Maeve Carlson



# WWDIICAL

Who We Are  
Climate Change in Maine  
The Risk to Wastewater Assets  
Summary of Resources  
Taking Action in Your Community  
Thank You

# Engine

# WRIGHT ENGINEERING



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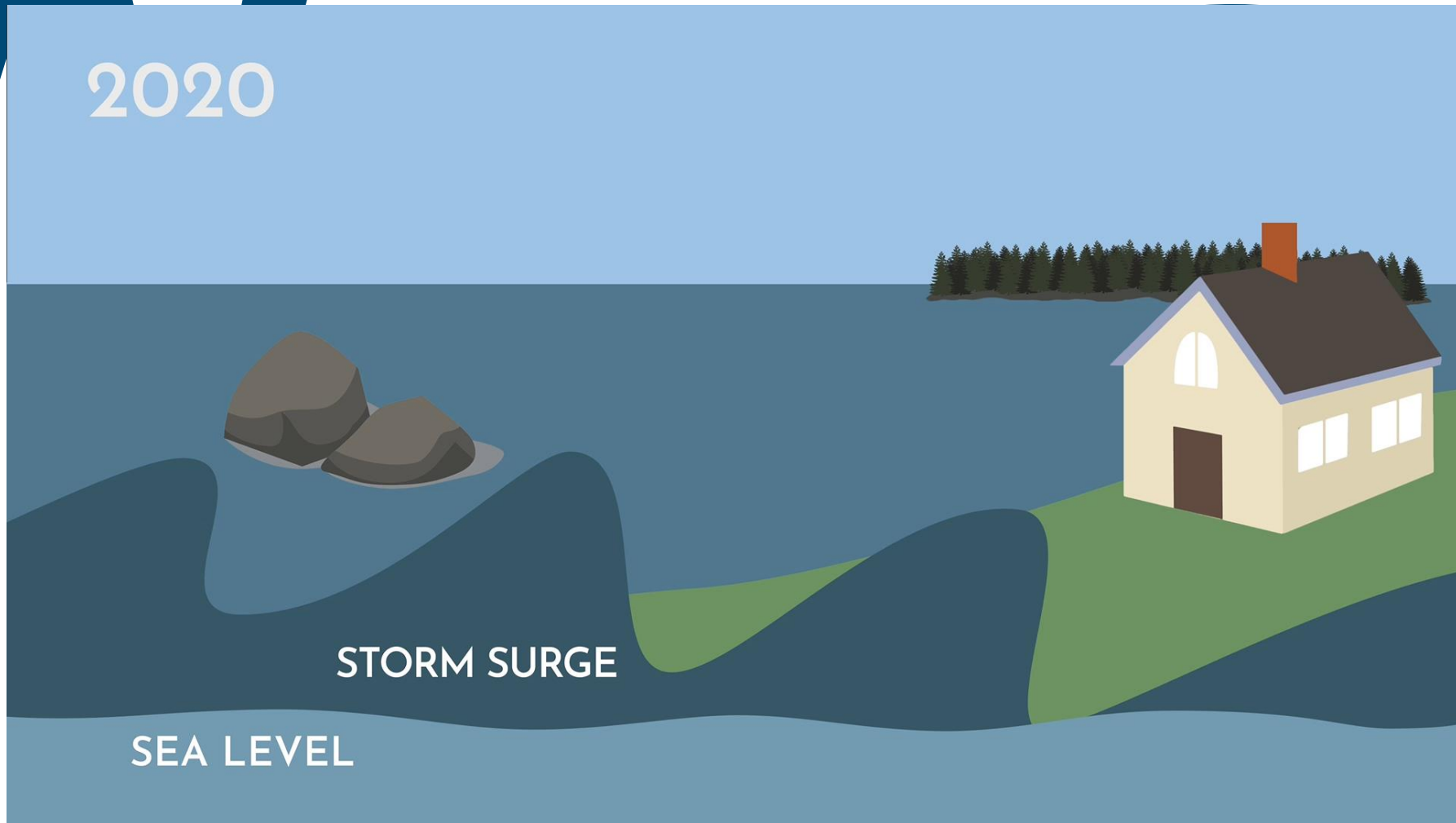


**Kendra Jo Grindle**  
Senior Community  
Development Officer  
Island Institute



# Introduction to Sea Level Rise

2020



From the Island Institute



# Climate Change in Maine

Aug. 2020

Scientific Assessment

Dec. 2020

Plan for Action

May 2021

Funding Proposal

Aug. 2021

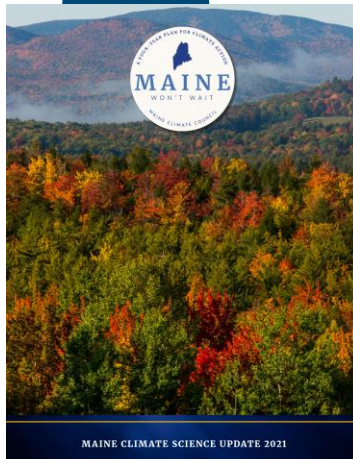
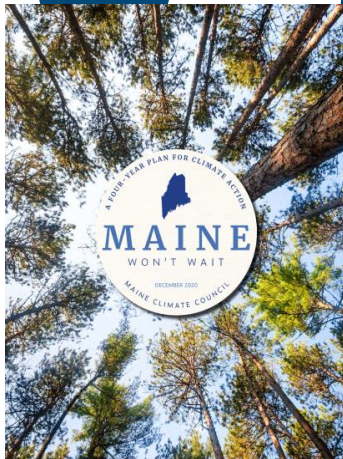
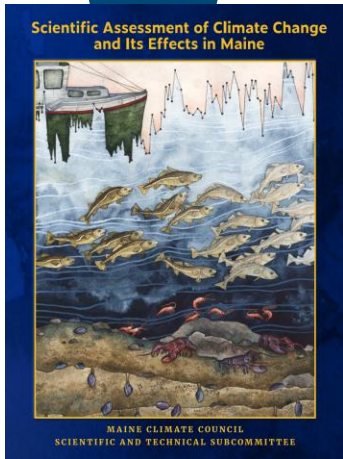
Scientific Update

Sep. 2021

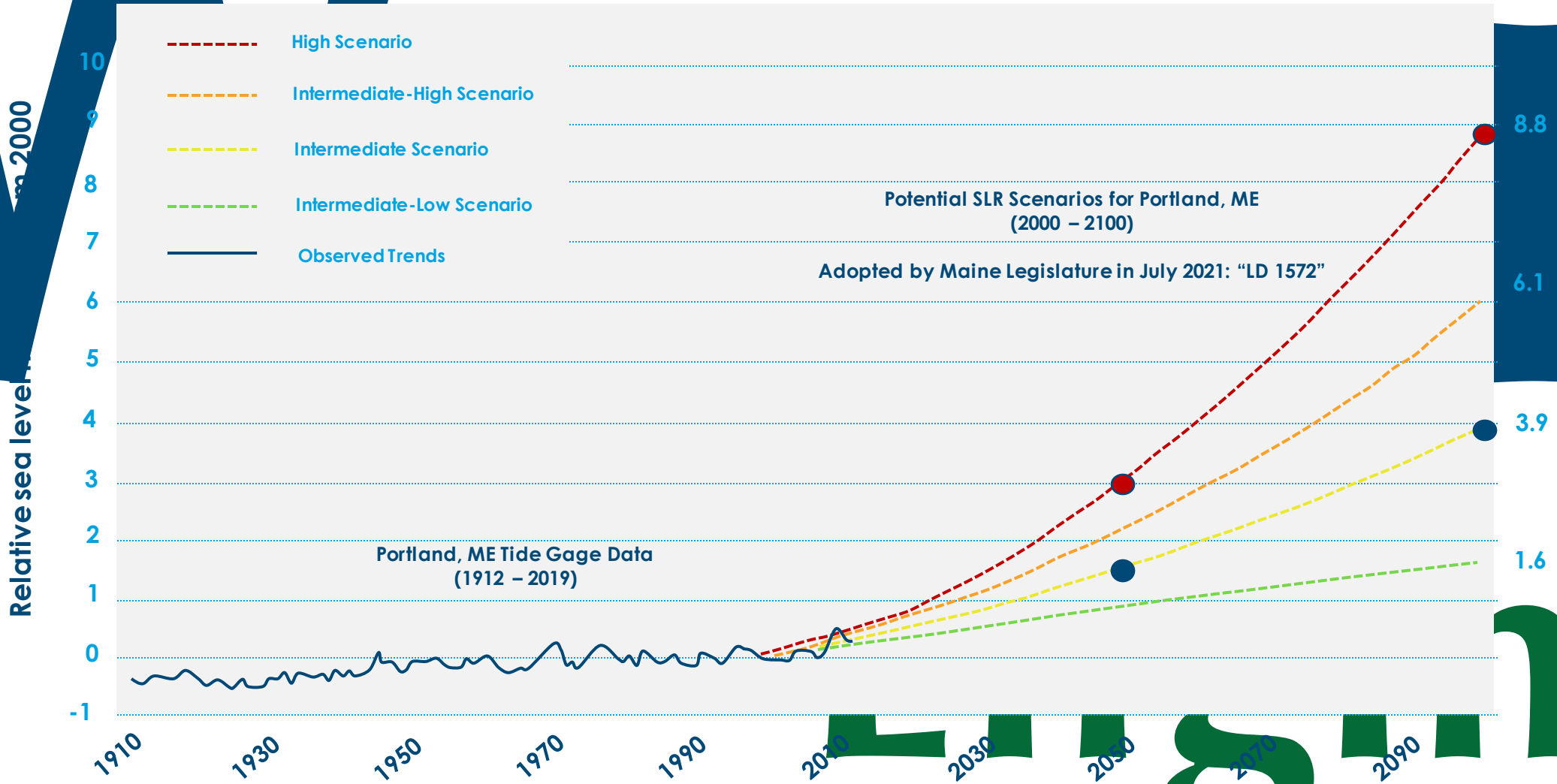
Legislative & Funding Update

Dec. 2021

One-Year Progress Update



# Climate Change / Maine – Sea Level Rise Scenarios



Replicated from Maine Climate Council



# Wastewater Assets at Risk – WWTF

## Sea Level Rise

Wastewater assets are commonly located at low elevations to accommodate gravity sewers into the collection system design.



York Sewer District WWTF

Major Infrastructure	Sea Level Rise Inundation*
Saco WWTP	1.6 ft
York Sewer District	3.9 ft
Ogunquit Sewer District	1.6 ft
Kennebunk Sewer District	1.6 ft
Gardiner WWTP	3.9 ft
Machias WWTP	1.6 ft
City of Bangor WWTP	3.9 ft
City of Calais WWTP	3.9 ft
Wiscasset WWTP	1.6 ft
South Berwick Sewer District	1.6 ft

\*Sea Level Rise Inundation is represented by feet of sea level rise over highest astronomical tide, per the Scientific and Technical Subcommittee Recommended Sea Level Rise scenarios

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# Wastewater Assets at Risk – Pump Stations



Commercial Street Pump Stations in Boothbay Harbor, ME (modeled with 4ft of SLR)



# Wastewater Assets at Risk – Secondary Effects

Increased Inflow & Infiltration, accessibility issues, overwhelmed capacities due to flooding



Many of the above sources of I/I would be especially vulnerable to sea level rise



Limited site access at the Wiscasset WWTP



# WRIGGLE

1

Community

Stakeholders from across the region that are organized and committed to taking action

2

Local

A familiar team that understands what specific risks are applicable and can guide the process

3

Technical

Experts who can incorporate goals, relevant data, & regulations into practical applications

4

Funding

Opportunities to strategically plan and capitalize on resiliency incentives

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## Planning:

- [State Climate Action Plans](#)
- [FEMA State and County Hazard Mitigation Plans](#)
- [Municipal Climate Adaptation Guidance Series: Wastewater Management](#)
  - Municipal Planning Assistance Program
- [Maine Flood Resilience Checklist](#)
  - Maine Coastal Program

## Technical:

- [Maine Flood Hazard Map](#)
  - Maine Floodplain Management Program & FEMA
- [Sea Level Rise / Storm Surge Scenarios](#)
  - Maine Geological Survey

## Financial:

- [Infrastructure Investment and Jobs Act](#)
  - \$50 billion (federally) for water/ww projects
- [Clean Water State Revolving Loan Fund \(CWSRF\)](#)
  - \$20,000 in loan forgiveness for development of Climate Adaptation Plan
- [Maine Jobs & Recovery Plan](#)
  - \$20,000,000 to protect infrastructure from Climate Change
- [Coastal Community Grant Program](#)
  - \$20,000 - \$50,000 in grant for building community resiliency and adapting to climate change
- [FEMA BRIC Grants and HMGP](#)
  - Varying funds available for annual pre-disaster hazard mitigation
- [ShoreUp Maine Grants](#)
  - \$5,000 - \$15,000 for technical assistance for communities addressing sea level rise



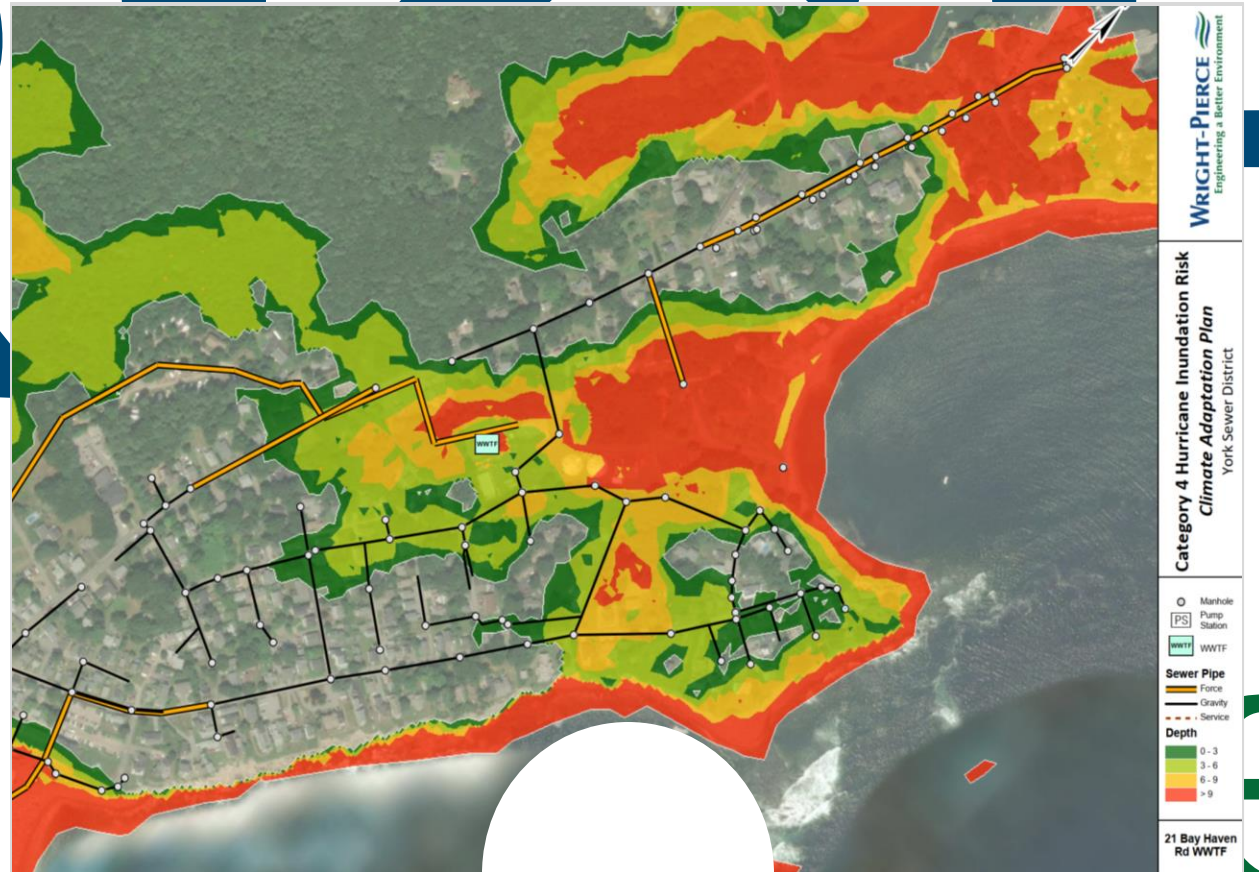
# Climate Adaptation Plans: York, ME

## Identifying Hazards & Modeling Scenarios

Picking the models that describe relevant hazards, focusing on both current and future scenarios



York Sewer District

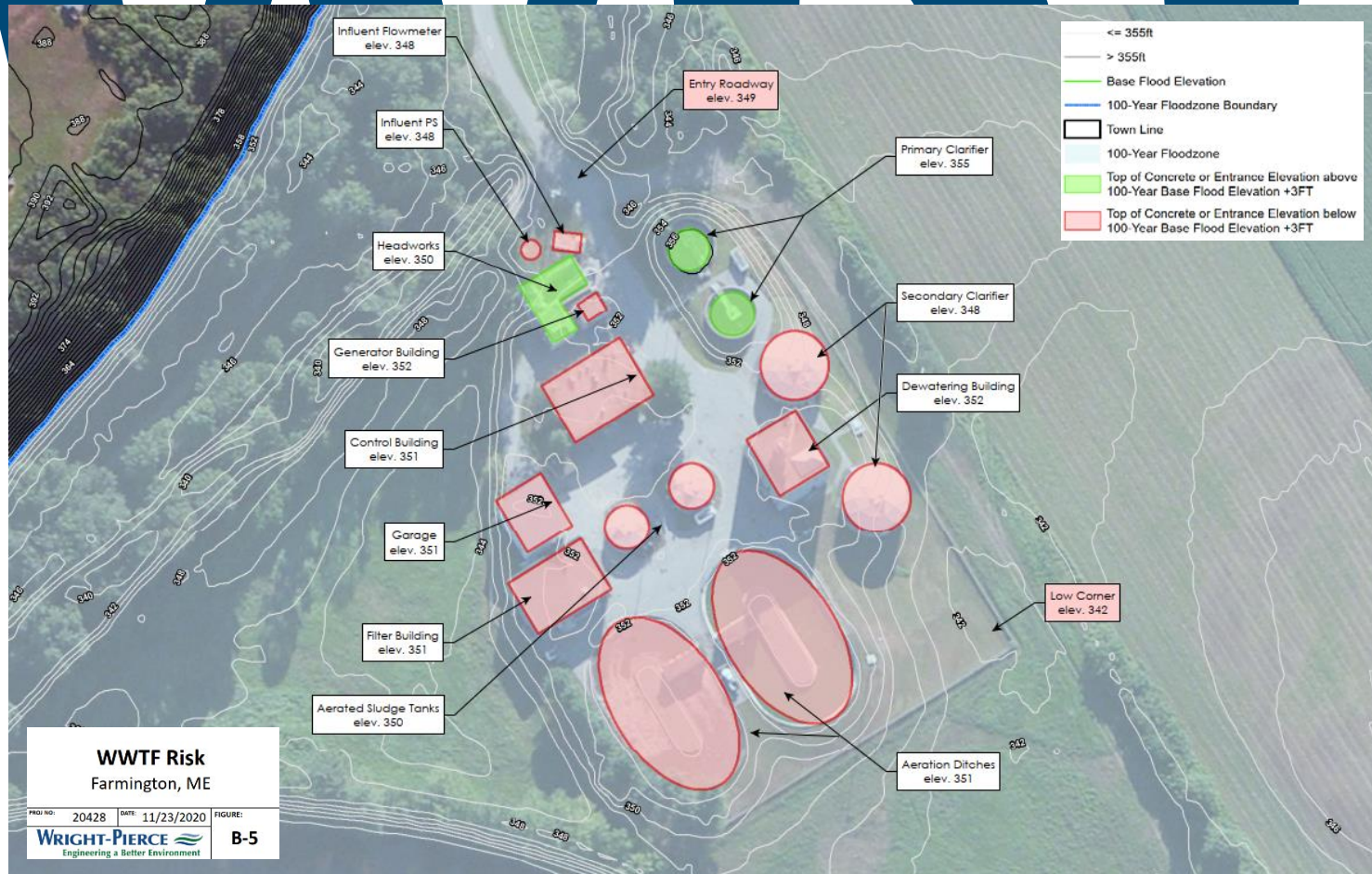


Highest Potential Home Inundation (10.5m) Sea Level Rise

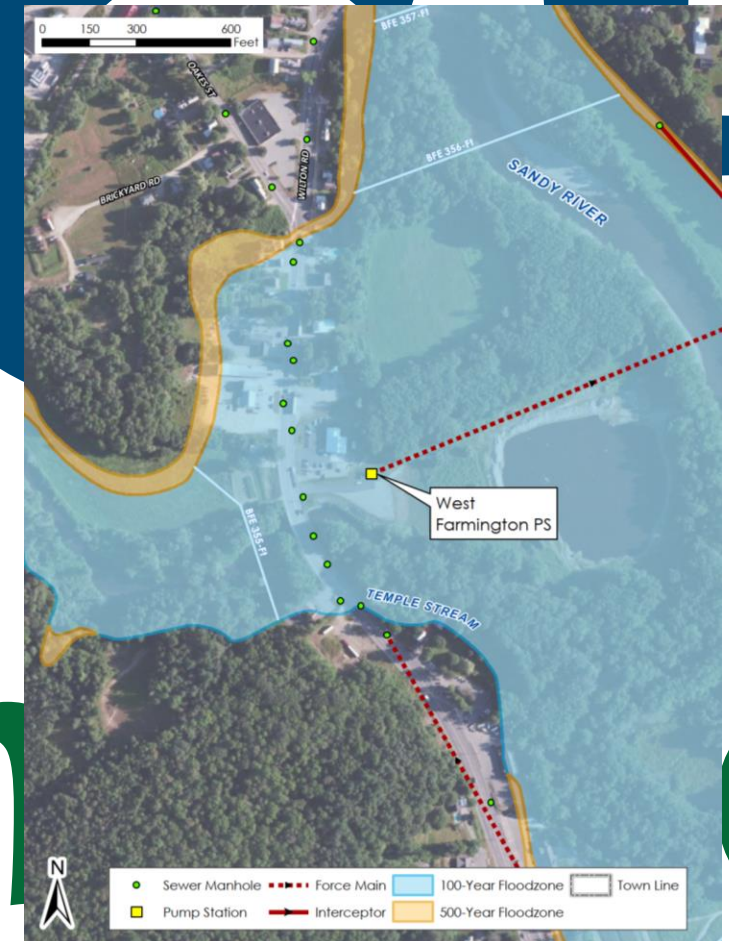
# Climate Adaptation Plans: Farmington, ME

## Determining Risk (Likelihood x Impact)

Categorizing actions based on both probability of hazard occurring and outcomes if it were to occur



Farmington Wastewater Treatment Facility



West Farmington Pump Station

# Climate Adaptation Plans: Ogunquit, ME

## Develop Implementation Plan

Determining which projects will be prioritized and executing plan to increase resiliency

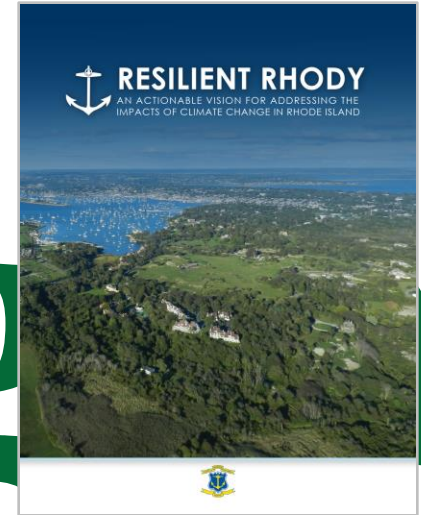
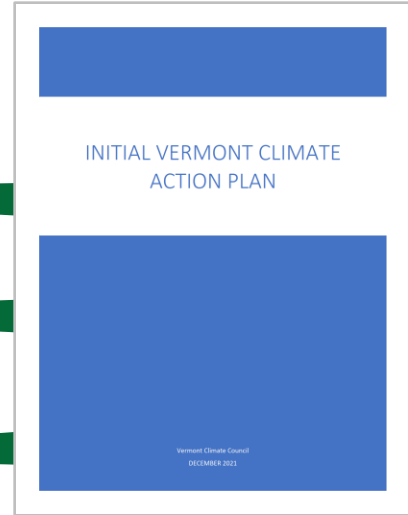
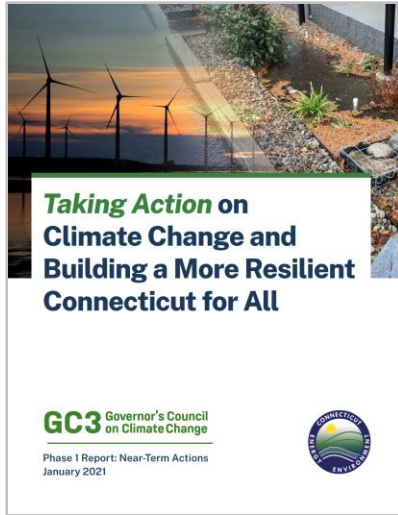
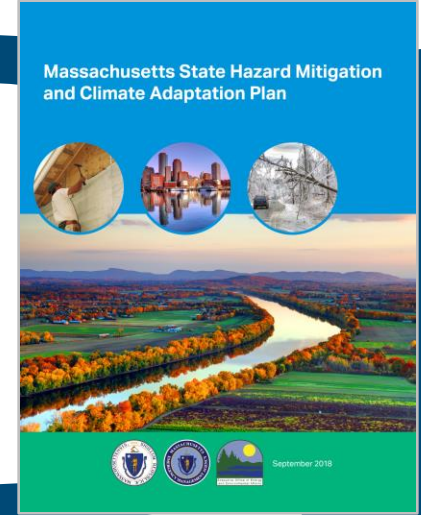
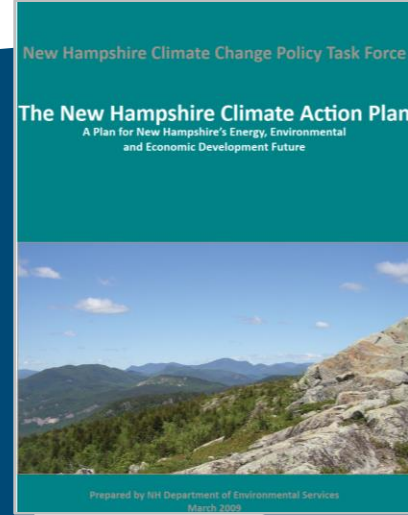
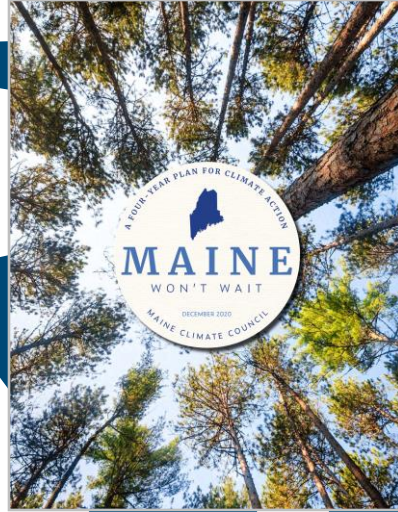
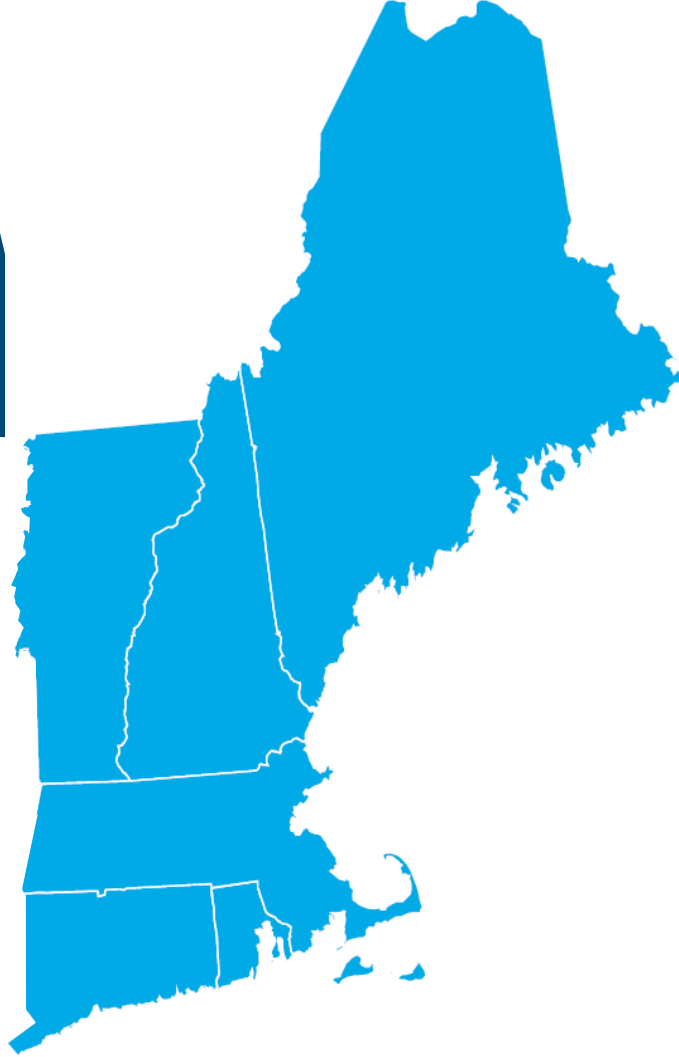


Ogunquit Pump Station No. 1 (before upgrade)



Ogunquit Pump Station No. 1 (after upgrade)

# Take Action in Your Community



# W

contact information



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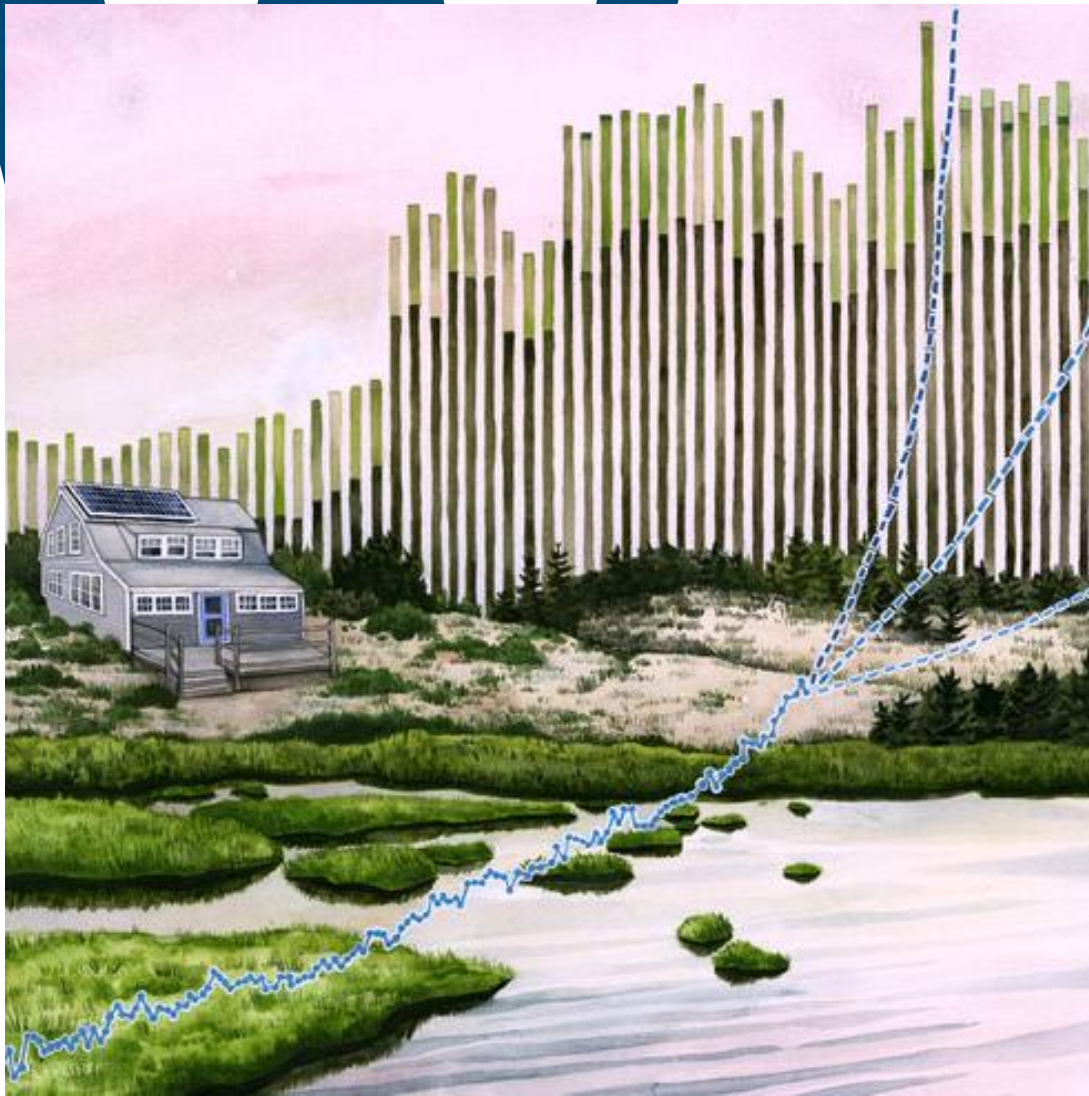




WR  
RIGHT  
THANK YOU

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# RIGHT

“It might be easier to put off climate action until calmer times.

But Maine can't wait. Maine shouldn't wait.

And Maine won't wait.”

- Governor Janet Mills

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*Rising Miles*  
Artist – Jill Pelto  
<https://www.jillpelto.com/mitigation>