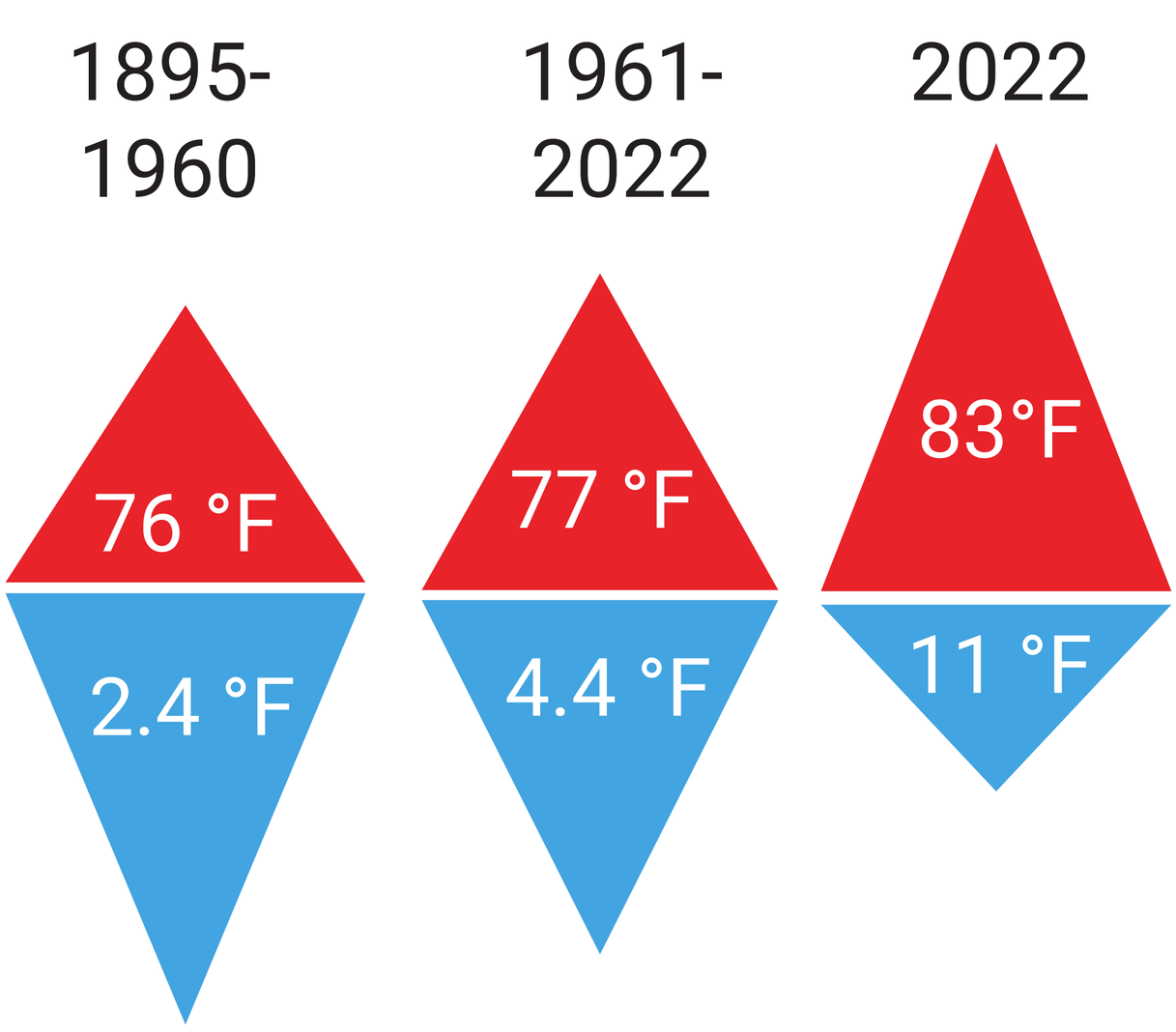
Climate Hazards



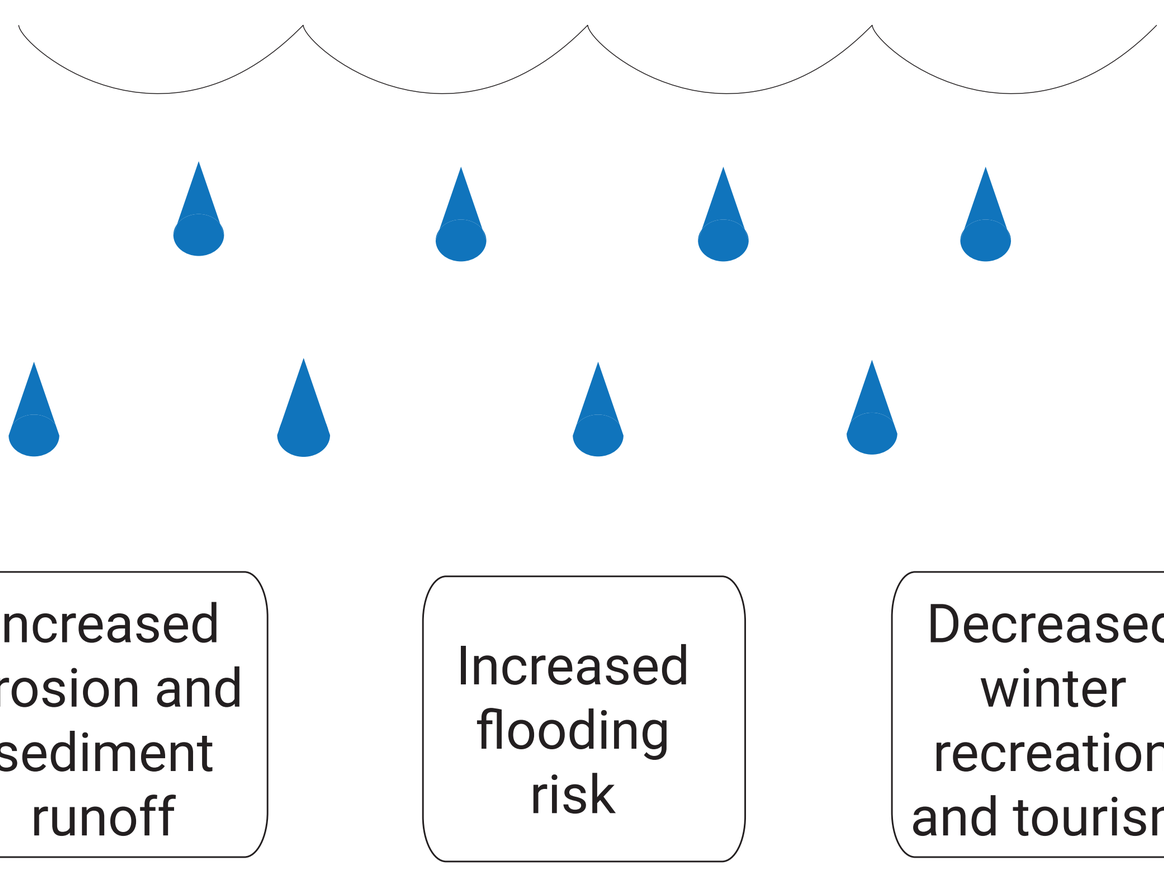
Temperature

Greenhouse gas emissions have increased the average annual temperature in Maine 3°F since 1895. By 2050, average annual temperatures are projected to increase 3.5 to 4 °F.

The graphic to the left shows the average high temperature for July and the average low temperature for January for the time range indicated.

Precipitation

Annual precipitation has increased by 15% since 1895, but snowfall has decreased due to warming. Maine is also projected to have longer periods of dryness despite the overall increase in rainfall.



Sea levels around Portland have risen 7.5” since 1912.

Ocean

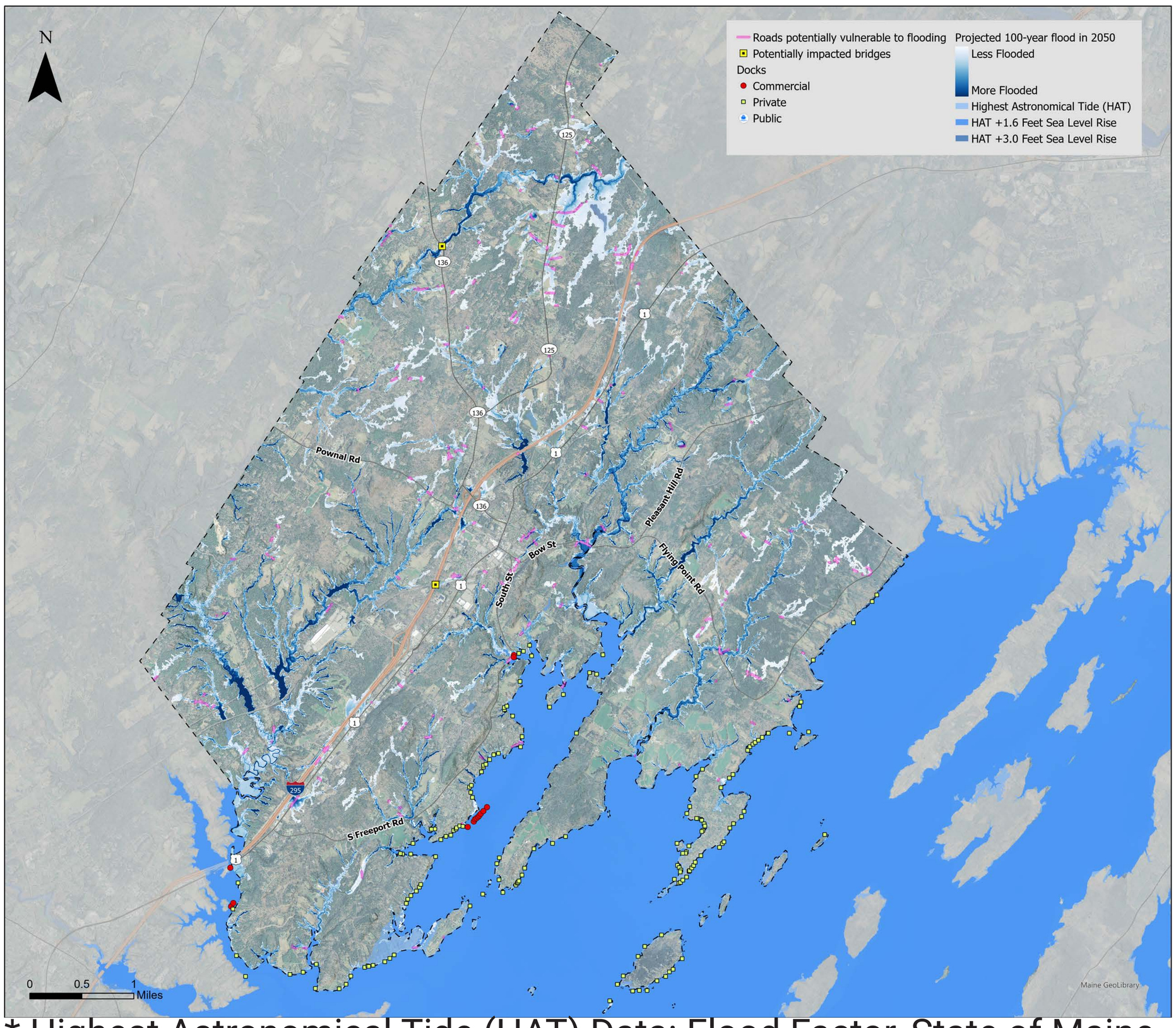
The water around Freeport is getting warmer and more acidic. The Gulf of Maine is warming faster than 99% of the world’s oceans, and the surface temperature has increased 2.9°F since 1895. Acidification and sea level will continue to increase, depending on mitigation efforts.

Global climatic change influences how weather and extreme events are affecting Maine. To view the full Vulnerability Assessment, refer to Appendix D. For additional information on Maine’s climate hazards, visit https://www.maine.gov/climateplan/climate-impacts

Transportation Infrastructure

Precipitation and flooding

- Risk of damage and erosion
- Disruption to service



Sea level rise

- Temporary and permanent loss of infrastructure
- Risk of damage and erosion

Temperature

- Buckling, cracking, and softening of roadways

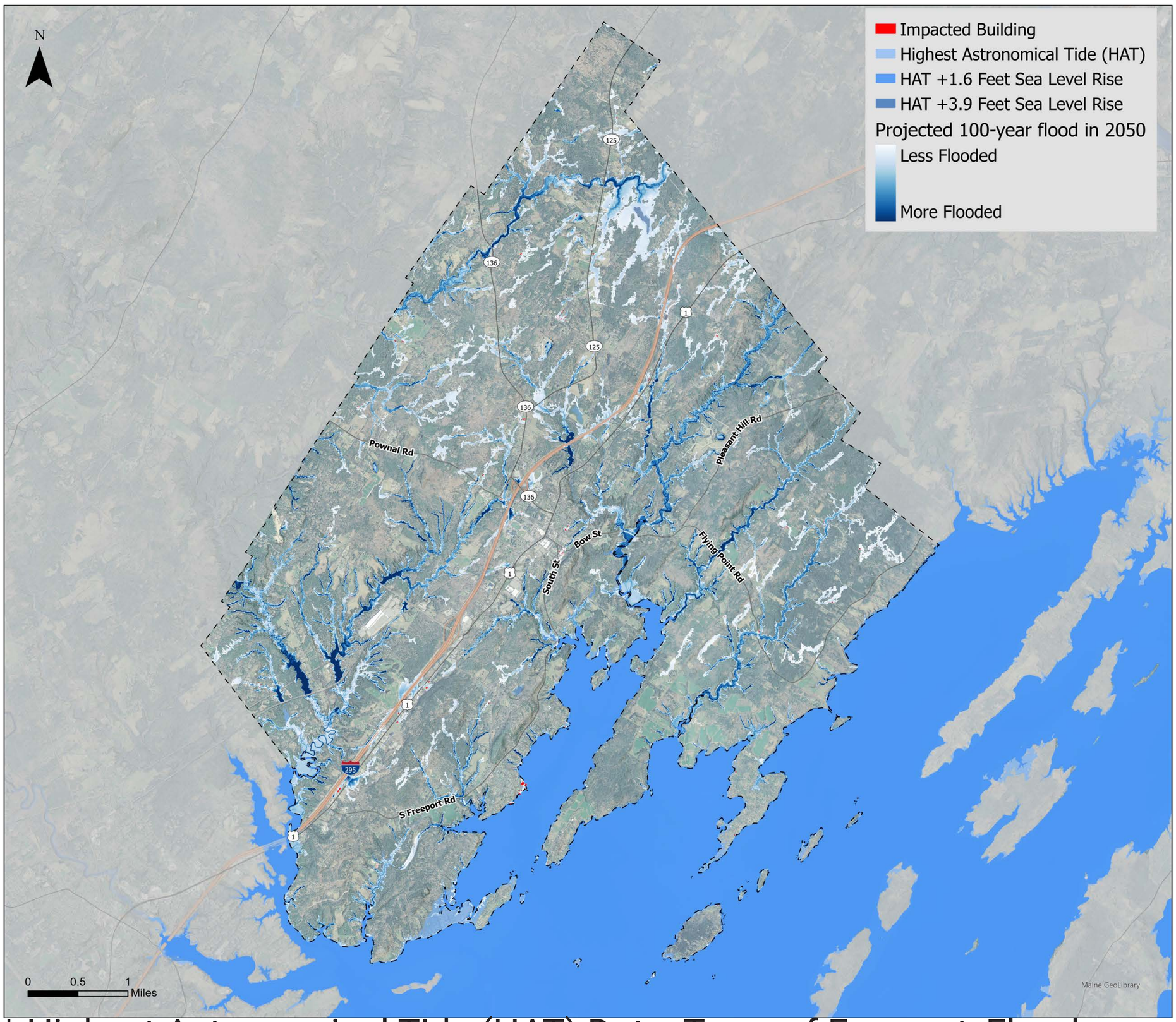
* Highest Astronomical Tide (HAT) Data: Flood Factor, State of Maine

In Freeport

	1.6 ft SLR	3.9 ft SLR	100-year flood
Roads	US Route 1, I-295 plus 5 local or neighborhood roads	US Route 1, I-295, S Freeport Road, plus 8 local or neighborhood roads	US Route 1, I-295, S Freeport Road, South St, St Route 136, Pownal Rd, Durham Rd, Flying Point Rd, St Route 125, Bow St, Wardtown Rd, plus over 100 local or neighborhood roads
Bridges	None	None	Durham Rd and I-125
Rail	None	None	CSX Railine
Marinas and Docks	All public and private marine infrastructure is at risk		

Tell us anything!
Use the sticky notes to post comments here

Buildings



* Highest Astronomical Tide (HAT) Data: Town of Freeport, Flood Factor, State of Maine

In Freeport

- Some of Freeport's coastline is elevated, providing an initial buffer to rising sea levels and storm surge. However, craggy coastal inlets extend far into the Town's landmass, and freshwater brooks run across it - exposing both habitat and infrastructure to some flooding risks.
- The table to the right shows an initial analysis of how many buildings and parcels may be impacted by coastal and inland flooding and sea level rise.

Precipitation and flooding

- Damage from flooding and extreme weather
- Temporary inundation

Sea level rise

- Permanent loss of property
- Change in property values

Temperature

- Increased energy costs

Scenario in 2050	Buildings Impacted	Parcels Impacted
HAT + 1.6 ft Sea level rise	7	582
HAT + 3.9 ft Sea level rise	13	614
100-year flood	112	1,1931

Tell us anything!
Use the sticky notes to post comments here

Health and Human Impacts

Why this matters

Climate hazards will have a direct impact on the town's social and economic health. The following are a few ways in which climate change can impact human systems.

Economy and Jobs

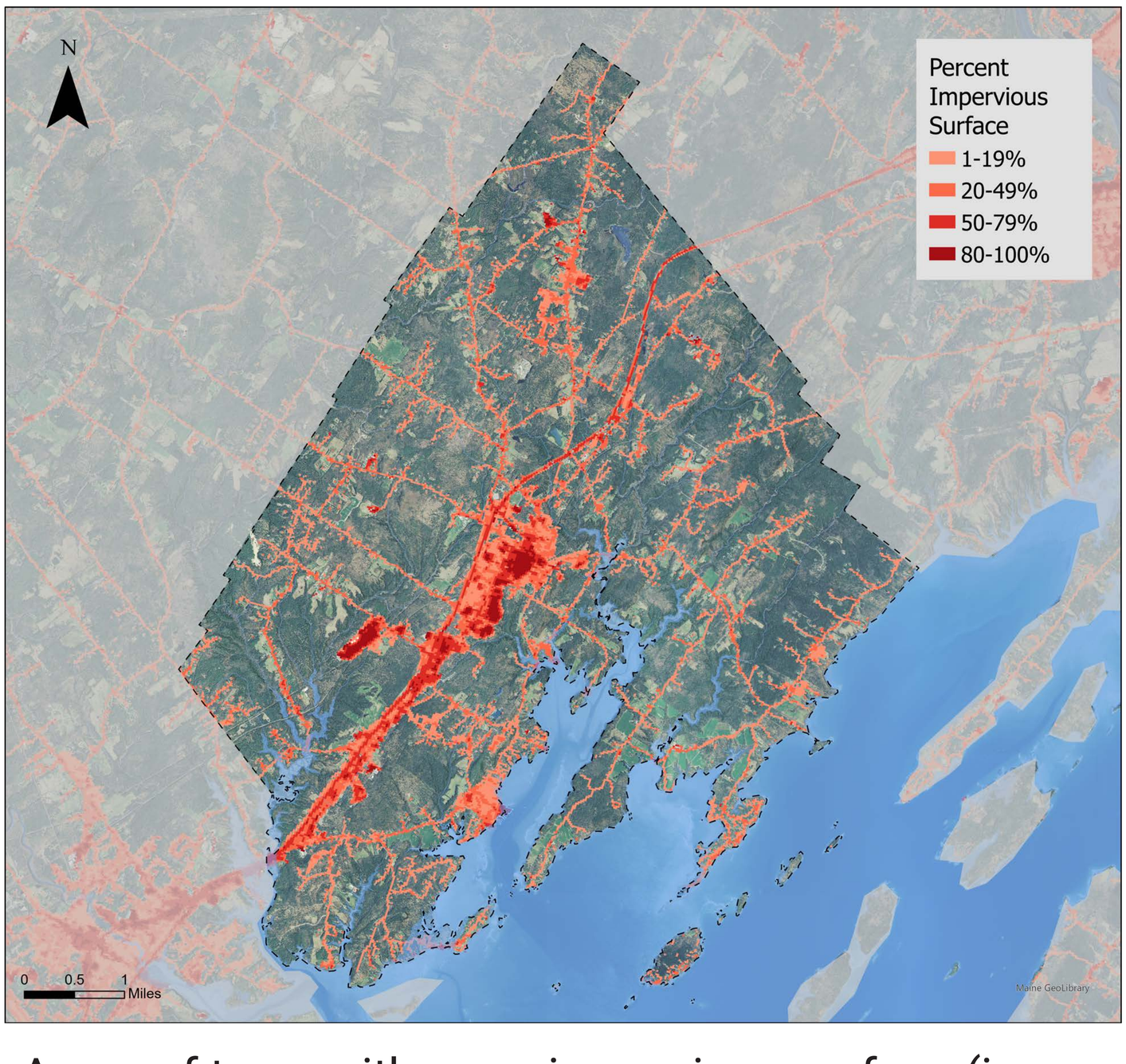
The Maine Climate Council estimates the impacts of sea level rise and flooding could cost the State over 5,300 jobs, with the majority of that coming from the tourism sector.

Housing

Rising sea levels and storm intensity threaten not only to directly damage houses, but also create lasting effects on property values, the Town's tax base and real estate market.

Community Services

The need for social services and community resources will likely increase due to the financial, physical, and emotional stressors created by climate change.



Areas of town with more impervious surface (i.e., buildings, roads, parking lots, etc.) retain more heat and have higher surface temperatures while areas with more trees and vegetation remain cooler.
Data source: National Land Cover Database

Public Health

Heat Risks

Hotter temperatures put vulnerable populations at an increase risk for heat-related illnesses

Air Quality

Climate change will likely exacerbate poor air quality over time, and lead to higher pollution

Vector-Borne Diseases

Warmer winters, and more precipitation increase the number of ticks and mosquitoes.

Tell us anything!
Use the sticky notes to post comments here

Conserved Lands

Precipitation and flooding

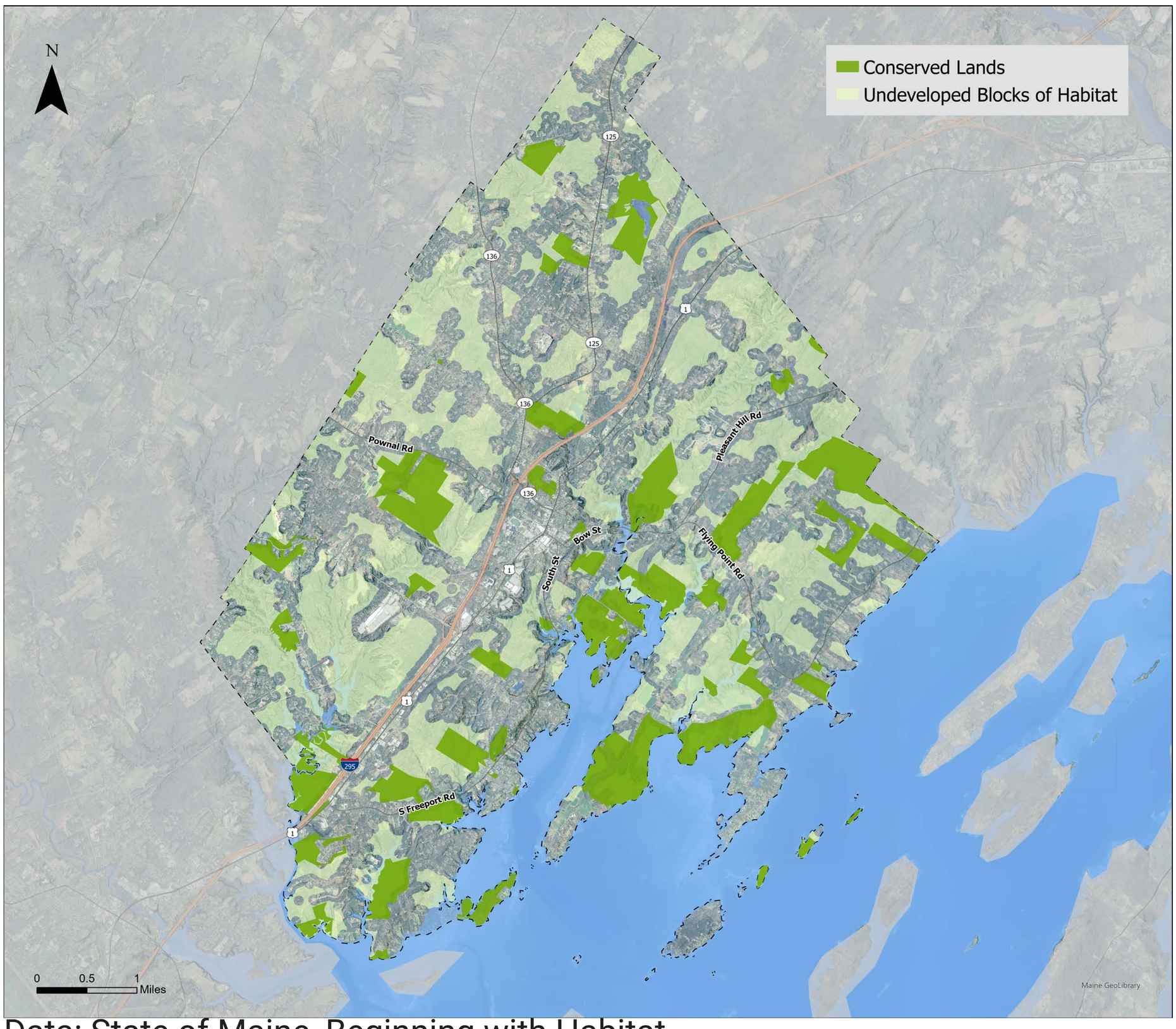
- Inundate or fragment ecologically significant areas.
- Decreased water and air quality

Sea level rise

- Permanent loss of areas

Temperature

- Shifting ecosystems
- Increase in invasive species



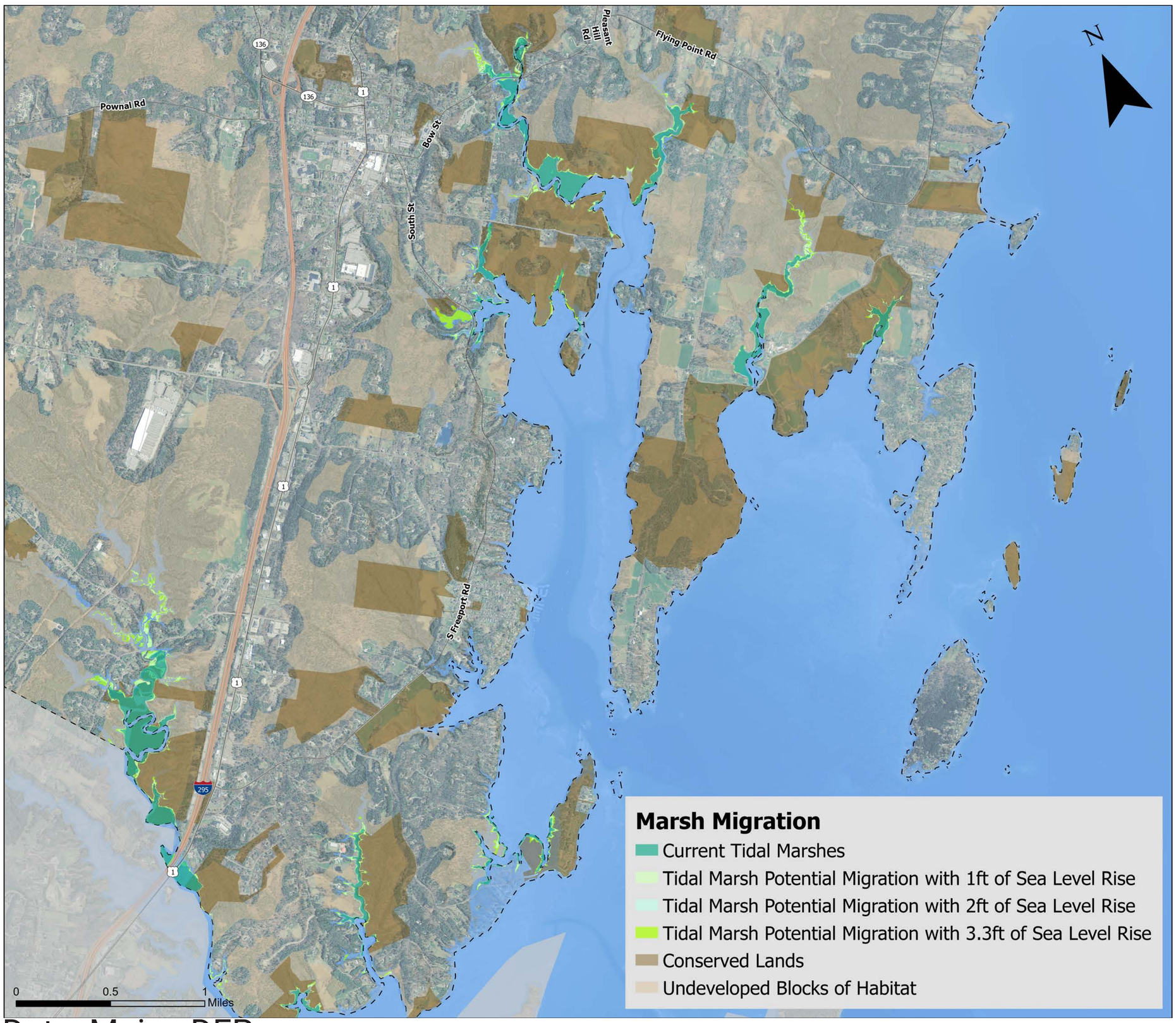
Data: State of Maine, Beginning with Habitat

In Freeport

The Town has 3,025 acres of conserved land. The largest conserved area is Wolf's Neck. There are several undeveloped blocks of land that have the potential to be conserved, strategically identifying blocks that could build resilience again climate hazards is a key adaptation action.

Tell us anything!
Use the sticky notes to post comments here

Marsh Migration



Data: Maine DEP

Precipitation

- Decline in water quality
- Increased inundation risk to development

Sea level rise

- Loss of marsh habitat
- Shoreline destabilization

Ocean Changes

- Strain on vegetative health

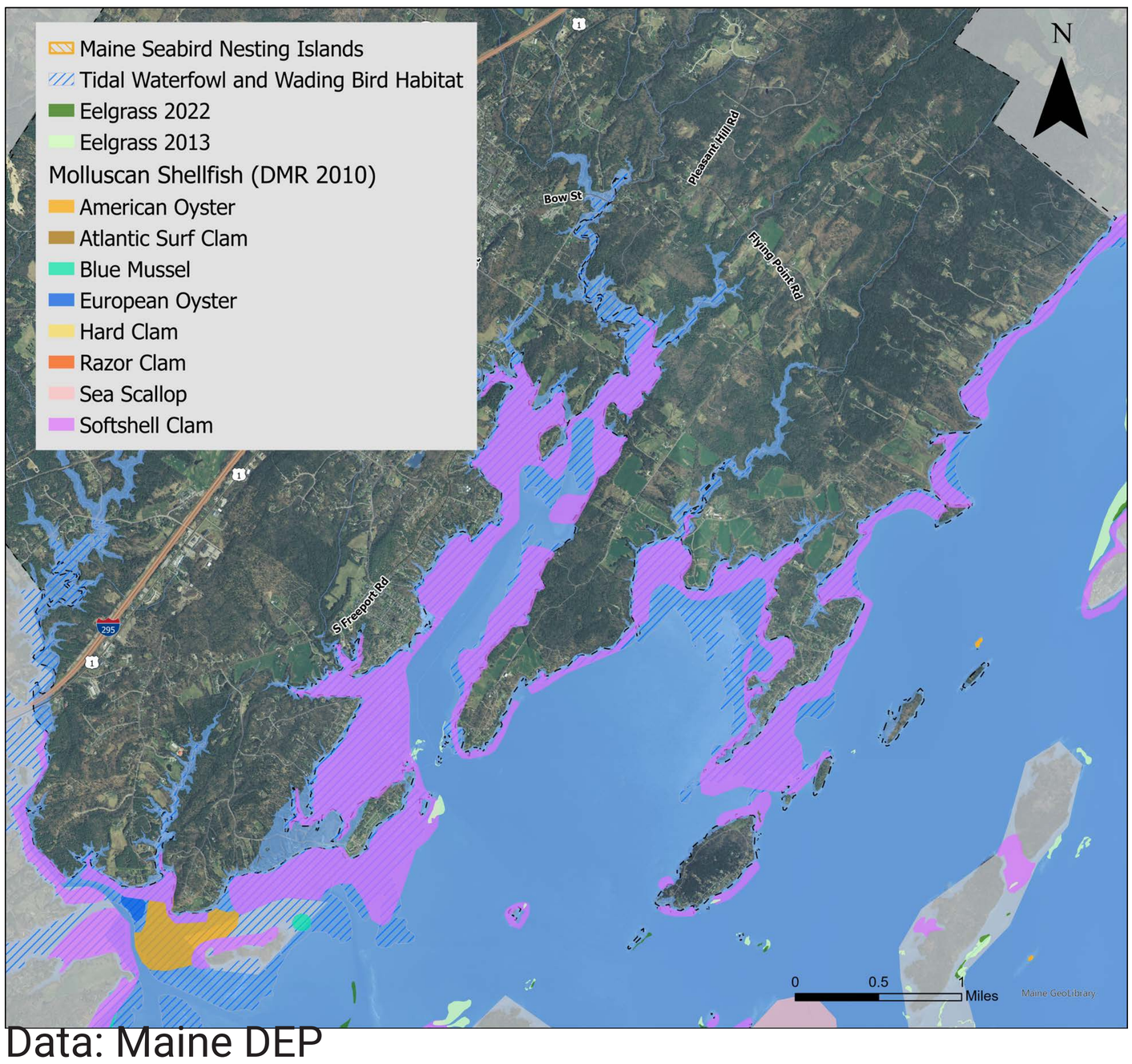
In Freeport

- The area around Cousins River is identified as able to support marsh migration, although the road crossing at Old County Road may limit future migration.
- Most of the marsh migration areas across town are already adjacent or within already conserved lands, ensuring that future migration will be protected. There are several areas with undeveloped blocks of habitat that could be important for future conservation to ensure development does not impede migration.

Scenario	Potential Marsh Migration (acres)
Current	191.1
1 ft Sea level rise	19.5
2 ft Sea level rise	36.4
3.3 ft Sea level rise	56.8

Tell us anything!
Use the sticky notes to post comments here

Aquatic Habitat



Data: Maine DEP

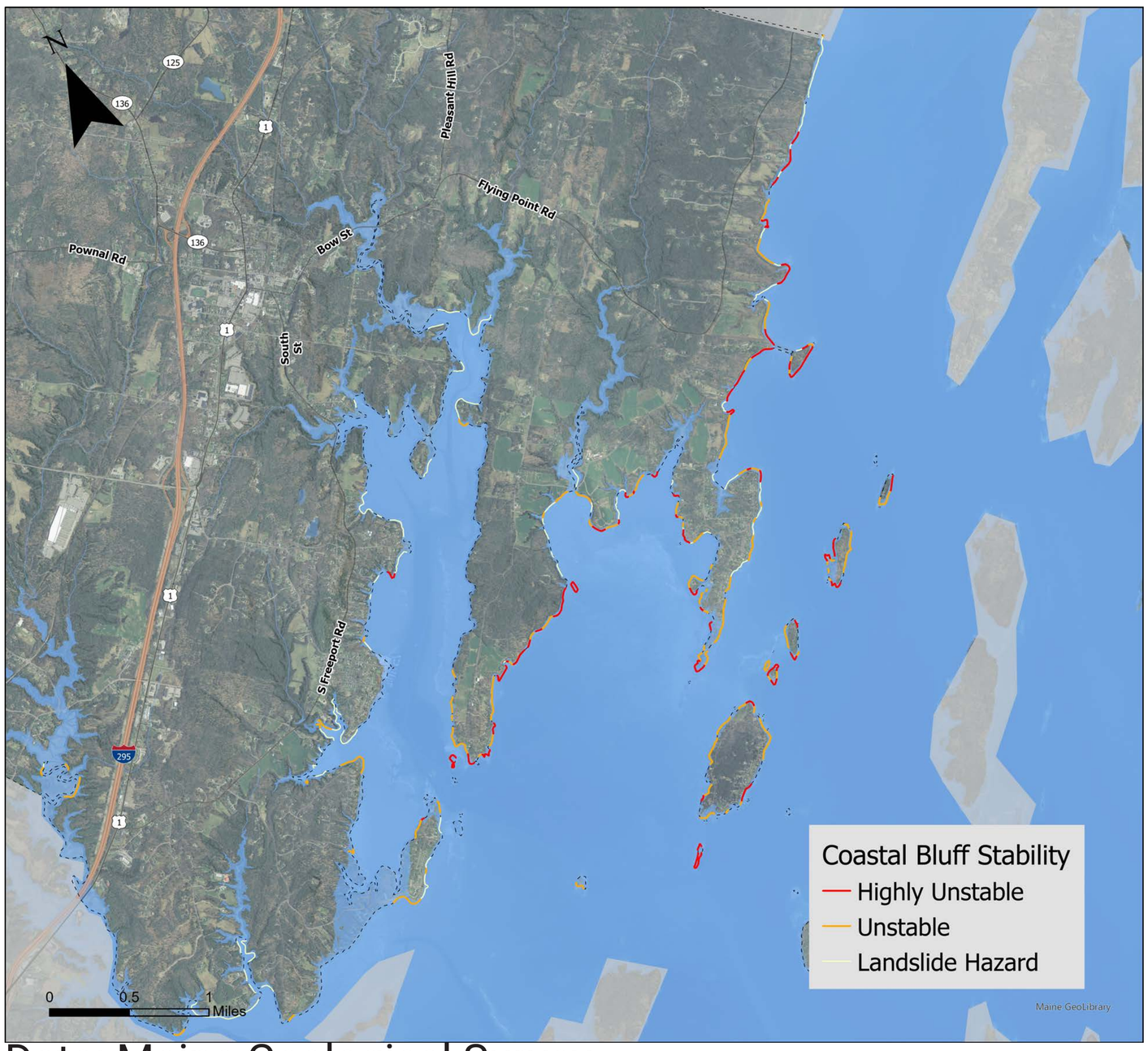
Ocean Changes

- Strain on vegetative health
- Shifting species habitat
- Economic losses
- Decline in water quality
- Strain on food systems

In Freeport

- Much of Freeport's coastline supports significant tidal habitat.
- Eelgrass coverage has decreased and almost disappeared along Freeport's coast.
- The aquaculture industry supports local jobs and the economy.

Coastal Erosion



Data: Maine Geological Survey

Precipitation and Sea level rise

- Increased flooding
- Damage to habitat
- Risk to infrastructure
- Removes natural storm barrier

In Freeport

A large portion of the coastline are on unstable or highly unstable bluffs, while other areas are at risk for a landslide.

Tell us anything!
Use the sticky notes to post comments here

Social Vulnerability

in Freeport

Certain people and groups are more vulnerable to the impacts of climate change than others. This means people in the same town may experience climate change differently.

8,622
Total Population

4,106
Households

11.3%	Live below the poverty line
3.2%	Are unemployed
17.9%	Are self-employed
0.8%	Have a natural resource occupation
$87k	Median annual income

Age & Health

25% of Freeport's population is 65 years old or order.
19% of the 65+ population lives alone.

Age and health affect the ability to control body temperature and maintain a healthy immune system, which make older and younger populations more prone to health-related climate impacts.

21% are under 18 years old

16% of households have a person living with a disability

Race & Ethnicity

9.0%	People of Color
1.0%	Limited English

Race and ethnicity are strongly correlated with disparities in health, exposure to environmental pollution, and vulnerability to natural hazards.

Housing & Transportation

People living below the poverty line or somewhere unaffordable have less money and time to prepare for climate change or deal with climate disasters.

16.4% homeowners who are cost burdened**

51.7% renters who are cost burdened

Mobile Homes	7.1%
Older Homes	38.2%
No Vehicle	2.2%
No Internet	4.6%
Renters	19.6%
Cost Burdened	22.7%

***Cost burdened households are those who spend 30% or more of their income on home or rental costs*

Reducing social vulnerabilities creates healthier, more resilient communities.

Data from the ACS 5-year estimates